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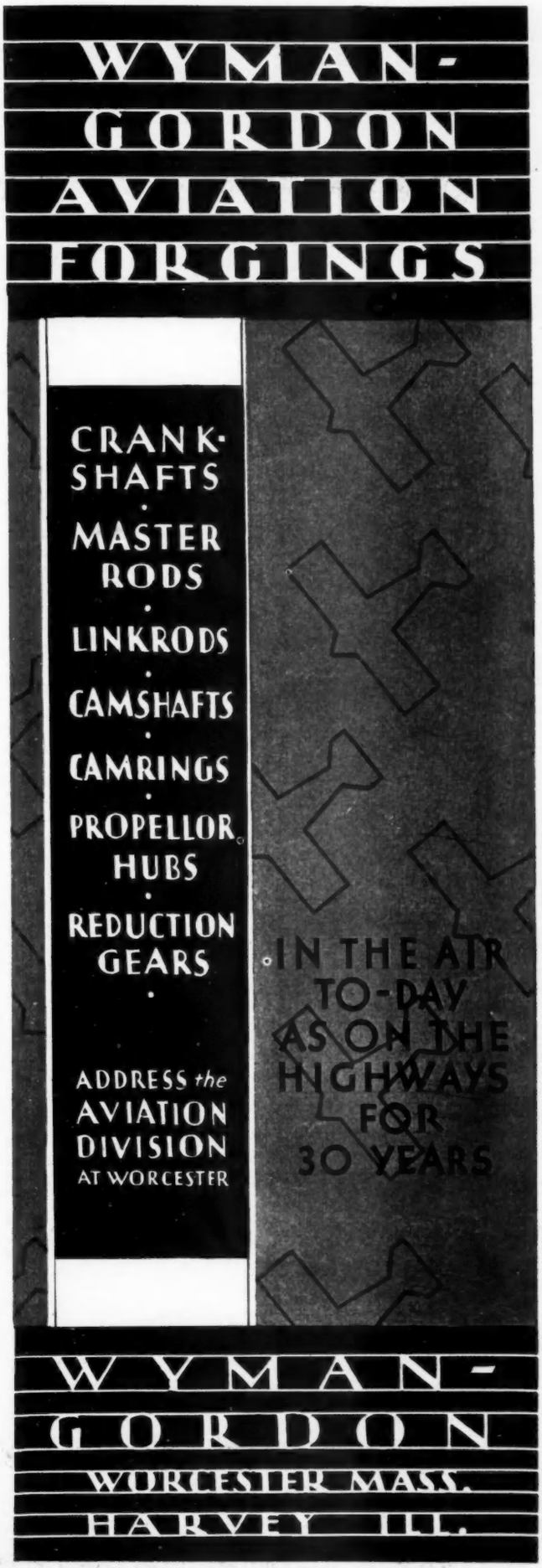

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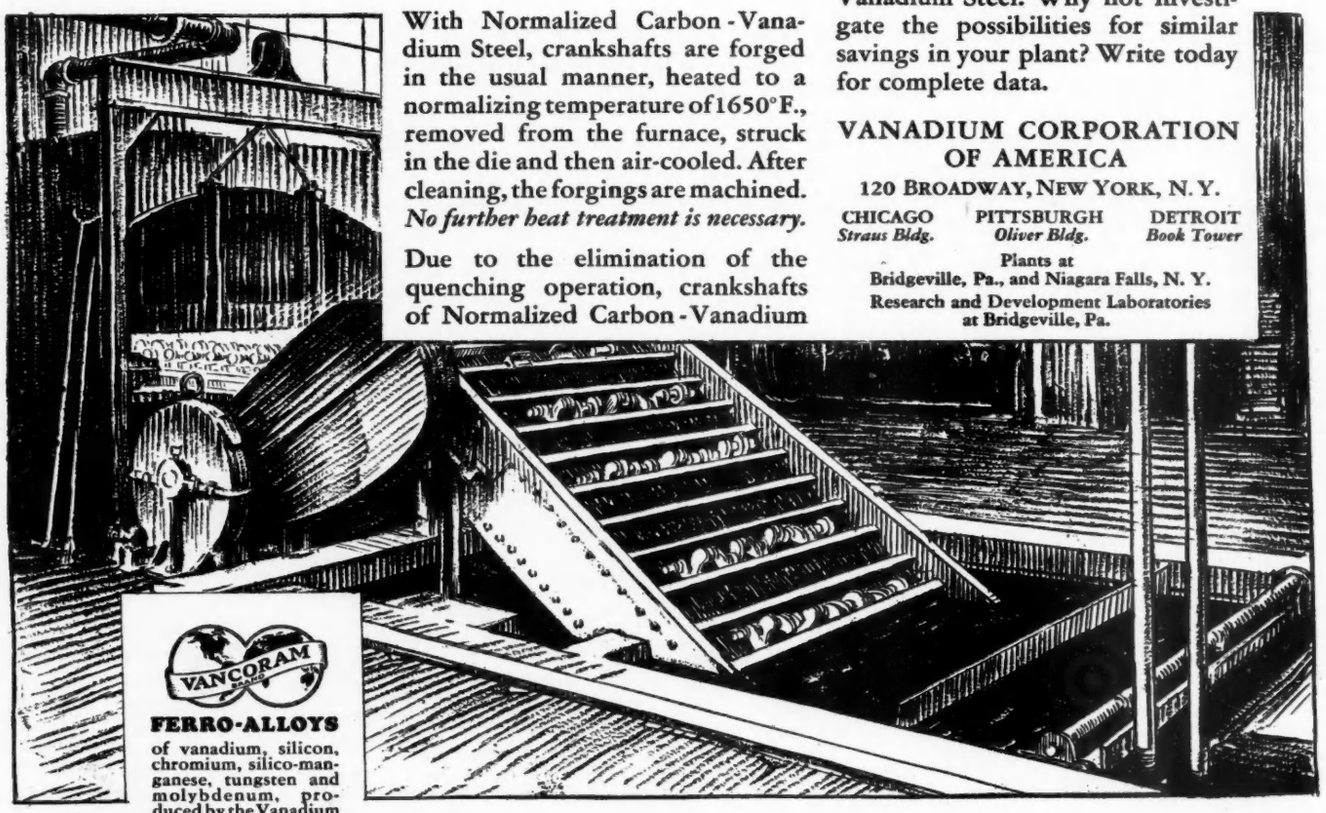

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AUTOMOTIVE INDUSTRIES
VOLUME 62 *Philadelphia, Saturday, February 8, 1930* NUMBER 6

Dealer-Factory Relations Emerge As Dominant *Problem*

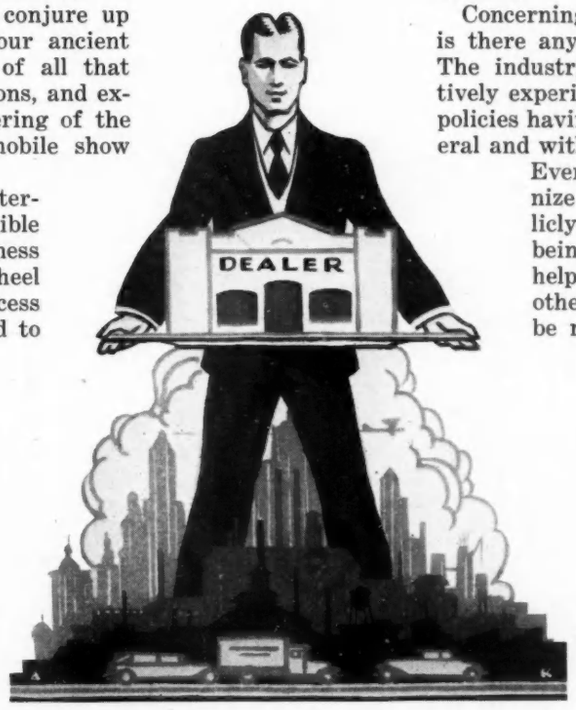
Through the welter of conflicting attitudes toward the retail automotive merchant, it is apparent that car manufacturers are planning a constructive approach to the situation.

By NORMAN G. SHIDLE

THE passenger car dealer—with his troubles, his problems, his relations with the car manufacturers—has been the cynosure of automotive eyes in these opening weeks of 1930.

Some of those eyes are kindly, some severe; some are looking at him studiously, others are merely glaring; through many shines sincerity of purpose; a few, perhaps, mask harshness of feeling with cajoling gaze. But factory men, whether they build passenger cars, manufacture replacement parts, or repair shop equipment, all are looking more intently at the automobile dealer today than ever before, and all are figuring on definite activity in promotion of their relations with him.

This view of the dealer bestriding the current automotive picture rises in clear outline as we tilt back our chair and try to conjure up through the smoke clouds of our ancient pipe some summarized vision of all that mixture of meetings, conversations, and exhibits that constitute the gathering of the automotive clans during automobile show weeks.



Scores of other automotive interests and ideas relating to possible mergers, to the general business tendencies, to further front-wheel drive probabilities, to the success of the shows themselves seemed to be sketched clearly in the picture as well, but they all merge into the background of the panorama. The most vital questions in the minds of most factory executives right now almost all seem to relate to dealer relations in one way or another.

Some of the questions getting most attention are:

1. Gearing car output to dealer and consumer demand.
2. Dealer discounts.
3. Service policies, particularly as related to whether factory or dealer shall pay labor charges on parts replaced during the standard warranty period.
4. Junking plans.
5. To reimburse or not to reimburse dealers for any of losses on cars in stock at time new model is announced.
6. To reimburse or not to reimburse dealers for losses on cars in stock when a price cut is made.
7. Possibilities of non-cancellable contracts.
8. Closed territories.

And we even heard talk in responsible quarters of possibilities in the dim and distant future of some sort of profit-sharing arrangement between factories and dealers!

Concerning none of the items mentioned is there anything like common agreement. The industry is very definitely in an actively experimental period as regards many policies having to do with marketing in general and with dealer relations in particular.

Every sensible executive will recognize that fact privately if not publicly. Some of the new policies being established will undoubtedly help the dealer profit situation, but others undoubtedly, too, will have to be modified in the light of future experience.

To meet strong demands from retailers, more than one factory at this time is instituting details of policy and practice partly to prove the sincerity of their desire to play fair with their dealer organization and not always because they believe entirely in the basic economic efficacy of the policy detail itself.

While admitting the need for changed policies in cer-

tain respects if dealers are to make a fair profit on the average, some of the best thinkers in the industry are saying privately something like this:

"Policies do need to be changed in certain respects if the dealer is to have a really fair break. But fundamentally the effective operation of these policies is going to be the important thing. Success has never come to an individual business nor to an industry through discovery of a formula. It comes only through efficient, active, intelligent day-to-day operation of a few sound economic fundamentals. Any manufacturer or any dealer who thinks that the enunciation of a few policies—even though that enunciation be entirely sincere—is going to better conditions automatically is only fooling himself. Method and effectiveness of operation always is going to be more important than formulæ.

Fitting Production to Demand

"With the institution of a number of new policies, both dealers and manufacturers must be careful not to sit back and wait for the millennium."

There would seem to be sound sense in that view. Trying to put into operation the policy of "gearing production to dealer demand," for example, requires the application of far more production, statistical and human relations technique than appears on the surface of most generalized discussions of this question which have been going on.

Nearly every manufacturer is agreed on the necessity for attempting to hold production strictly in line with dealer requirements, either for economic or tactical reasons. To carry the policy out successfully, however, is going to require a greater efficiency in many details of market analysis and production operation than has been common in some factories. And the success or failure of the attempt, as we see it, will depend, not on the degree of sincerity with which the policy has been installed, but on the degree of efficiency with which the details are worked out in any given instance.

Two definite schools of thought seem to have developed among manufacturers as regards car price and dealer discount policies. The industry has operated for a number of years now on the idea that the retailer, to meet competition, had to trade away a certain part of his discount on used cars. The public has become accustomed to selling its used cars to automobile dealers for a price higher than could be obtained in a straight sale elsewhere. Most discounts have taken this factor into account.

Price and Discount Policies

This year we find a few makers who believe it possible to put both prices and discounts down to a minimum, the theory being that with such a set-up a dealer simply cannot afford to overtrade on his used cars and therefore will not do so. Every manufacturer will watch with interest—many with sincere skepticism—the results of this policy. Factory executives in general at this time are not inclined to believe it will work, but general opinion has been wrong before and, of course, may be again.

A majority of factories evidently intend to institute a plan involving an allowance to dealers for junking cars similar in general characteristics to the plan which Chevrolet has had in operation for some time. There can be little question as to the popularity of such a move with the average run of automobile dealers at this time. Among the factories which seem inclined not to favor such a plan, however, are three of the strongest and most successful in the middle-priced field.

It would appear, however, as though a sufficient number of factories were going into the plan to give its efficacy a thoroughgoing trial. Impetus to a general adoption of a junking plan was given by the National Automobile Chamber of Commerce and the relatively large number of companies which have taken it up does furnish a splendid example of cooperation between manufacturers and dealers. The plan will remove a goodly number of unsafe cars from the highways; it will expedite to some extent the flow of traffic in congested areas; and it will reduce the amount of nonconstructive commercial effort which has been dissipated in the retrading and reselling of cars whose continuance in service was not economically justifiable.

This highway safety or car junking plan will not solve the used car problem.

Changes are taking place in factory policies as regards payment to dealers for labor consumed in replacing defective parts during the period covered by the standard warranty on new cars. One important group of manufacturers has decided to pay the dealer one-half of the flat rate labor charge on all such policy readjustments. One other big producer has always paid the dealer the entire labor charge on policy replacements during the 90-day warranty period and sometimes afterwards.

Financial Adjustment Plans

A majority of car manufacturers still feel that the dealer should bear that charge, although consideration to policy change in this regard is being given in several instances. A number of producers, however, are strongly opposed to any such move and probably would adopt such a policy only under pressure of competition.

In an effort to mitigate the adverse financial results to dealers of "clean-ups" of old models in stock at the time a new model actually is announced to the public, one group of car manufacturers is planning to make some financial adjustment with dealers on such stocks as are in excess of 3 per cent of that dealer's yearly volume. No general tendency is evident in the industry to develop a definite policy of this kind, however, so far as can be determined at this time.

Reimbursement of dealers for losses on cars in stock at the time of a price reduction continues to differ from company to company, as has been the case for some years past. A number of makers have written into their contracts a provision protecting the dealers in such instances.

The possibility of a non-cancellable dealer contract got some discussion around the hotels during the shows, but there is no indication of any serious consideration being such a development so far as a vast majority of manufacturers are concerned. One factory, nevertheless, is known to be considering adding a clause to its contract which would make cancellation possible only after real cause for such action has been established before a board of arbitration.

The Closed Territory Question

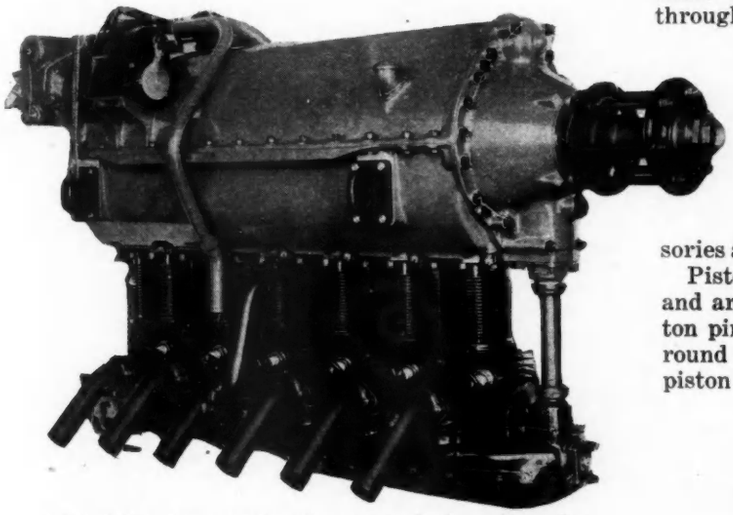
Manufacturers and dealers in general seem still to be rather far apart on the question of closed or open territories. Dealer bodies have frequently voiced their belief in the soundness of a closed territory policy. Only recently, for example, the board of directors of the Minnesota Motor Trades Association, in a communication to the National Automobile Chamber of Commerce, stated:

"The policy of open territory is causing the failure of a great number of dealers, who otherwise would be successful. It is undermining particularly the larger dealers in the metropolitan areas who most adequately represent their factories.

Fairchild Develops Six-Cylinder Inverted Aircraft Engine

New air cooled type, which has passed a factory 50-hr. non-stop test at nine-tenths of full load rating, has a piston displacement of 370 cu. in., and is equipped with an overhead camshaft.

A SIX-CYLINDER-IN-LINE inverted air-cooled engine has been developed and was recently put through a 50-hour non-stop test at nine-tenths full load by the Fairchild Engine Corp., a subsidiary of Fairchild Aviation Corp., of Farmingdale, Long Island, N. Y. As is generally known, there is a tendency at the present time toward in-line design for air-cooled engines because of the reduced head resistance, and the inverted construction is favored because it gives the pilot a better view ahead. It is planned to manufacture this engine in the Farmingdale plant of the corporation which has been engaged in engine development and the manufacture of parts for a considerable time.



Fairchild air-cooled in-line inverted aircraft engine

Photographic views, as well as longitudinal and transverse sections of the new engine, are shown herewith. The bore is 3 15/16 and the stroke 5⅛ in., which gives a piston displacement of 370 cu. in. The cylinders are made of steel with integral cooling fins, while the cylinder heads are Y-alloy aluminum castings screwed and shrunk over the cylinders. Valve seats of aluminum bronze are shrunk into the cylinder heads. It will be noted from the transverse section that both valves are inclined at an angle of 30 deg. to the vertical. Inlet valves are of chrome-nickel steel and of the tulip type. Exhaust valves are of the same material, of a modified tulip type and with hardened tip. Both sets of valves are held to their seats by double concentric springs.

Valve operation is through what is usually referred to as an overhead camshaft, which in this inverted engine is centrally beneath the cylinder heads. It is driven from the crankshaft by spur and straight bevel gearing, and a vertical shaft located at the propeller end. Directly below the crankshaft there is a parallel shaft which is driven from it by spur gears, and a bevel pinion formed integral with this shaft meshes with a bevel gear at the upper end of the vertical shaft. From the lower end of the vertical shaft the drive is to the camshaft by bevel gears. Part of the 2:1 reduction for the camshaft is effected at each end of the vertical shaft. All of the shafts are hollow. The pinion on the crankshaft also drives an accessories driveshaft above it through an idler. This accessories driveshaft extends the whole length of the engine through the upper part of the crankcase. From it are driven two magnetos, the oil pump, the generator and the fuel pump, and provision is made for driving a tachometer, which can be mounted on the generator pad. Provision is made also for mounting an Eclipse starter. It will be noted that the camshaft and all accessories are driven from the propeller end of the crankshaft.

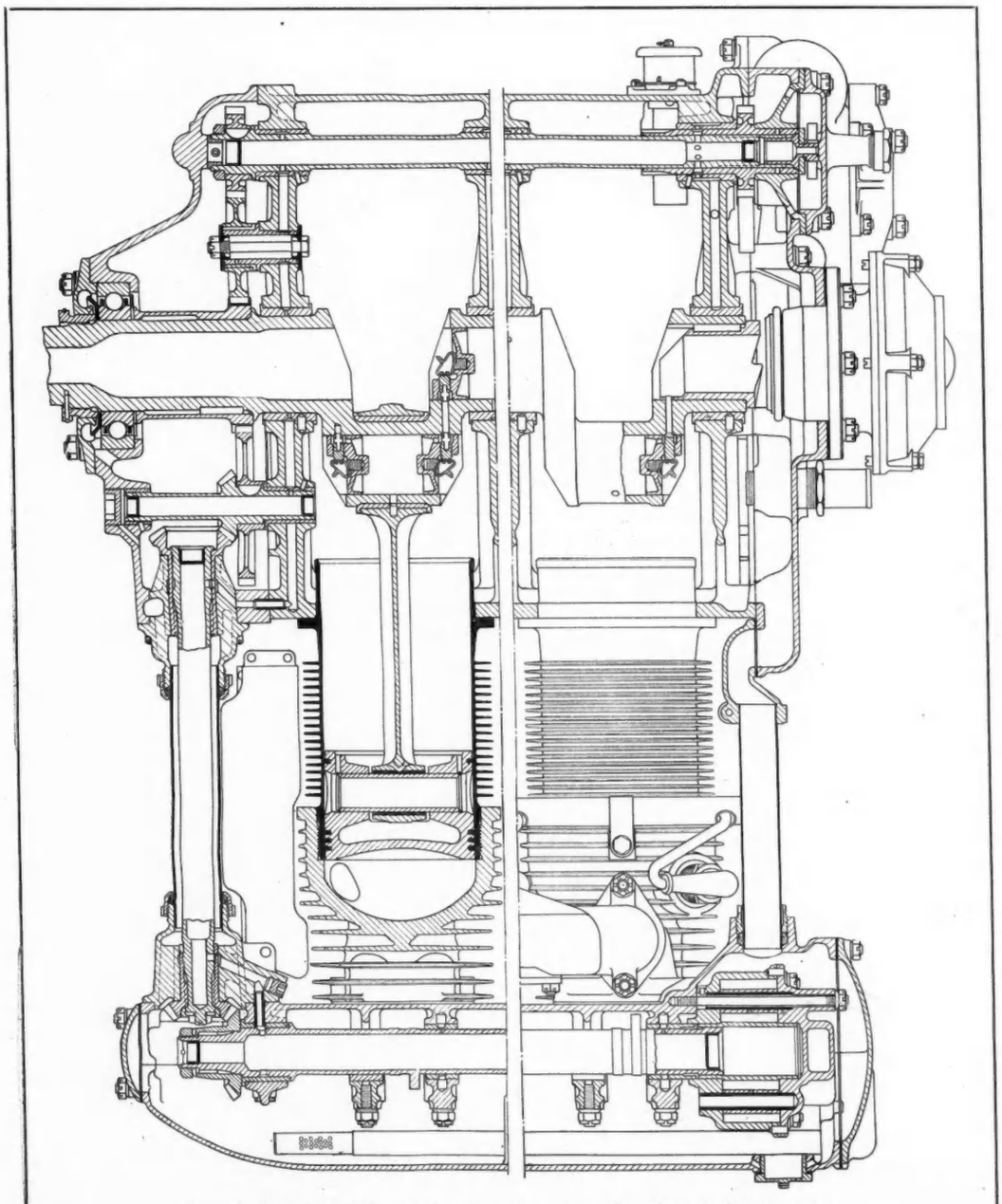
Pistons are cast of Fairchild 112-A aluminum alloy and are of the solid trunk type. The floating type piston pins are prevented from drifting by snap rings of round wire. Three compression rings are fitted to the piston above the piston bosses, and there is an oil scraper ring at the lower end. The bearing of the pin in the piston boss is directly on the aluminum of the piston casting.

Front view of engine

Cylinders extend 1 9/16 in. into the crankcase, and each is fastened by eight studs. The crankshaft is mounted in seven main bearings of the usual bronze-back, babbitt-lined type, which are located between the halves of the crankcase. For each bearing there are two long studs which screw into the upper half and pass

through drill holes in the lower half, being provided with castellated nuts on their lower ends, these nuts being provided with large-diameter washers to give plenty of bearing surface on the aluminum.

Lubrication is by pressure to all bearings except the piston pin bearings. Oil holes are drilled in the piston pin boss of the connecting rod to catch oil thrown off by the crankshaft. The oil pump is mounted at the rear end of the crankcase on the right-hand side. From the accessories driveshaft is driven a short shaft parallel with it, through an idler. This shaft drives the oil pump from its rear end and one of the Scintilla magnetos from its forward end. On the opposite side there is a similar drive for the remaining magneto and the fuel pump. The pump is of the two-gear type and is fitted with a pressure relief valve set to open at 60 lb. per sq. in. Oil distribution is through the hollow shafts and their bearings. The oil enters the distributor shaft at the rear end near the pump, through a strainer. It flows through this shaft to the front, lubricating the bearings of this shaft and the crankshaft bearings directly below them; it then passes on through a vertical drill hole in the forward wall of the crankcase, around the bearings of the two idler shafts and the crankshaft, and enters the vertical shaft through its upper bearing. From the lower end of the vertical shaft the oil passes in the same way through recesses and drill holes in the bearings and bearing supports to the inside of the hollow camshaft. There is a hole through the wall of the hollow camshaft at each bearing, and additional holes through the wall of the camshaft allow oil to enter the camshaft housing for the lubrication of the valve mechanism (rockers, rollers, etc.). What works through collects at the bottom of the housing and is withdrawn therefrom by the scavenging pump. This is a three-gear pump, mounted directly on the rear end of the camshaft. It has two inlet tubes, both provided with strainers, one of these strainers being located at the

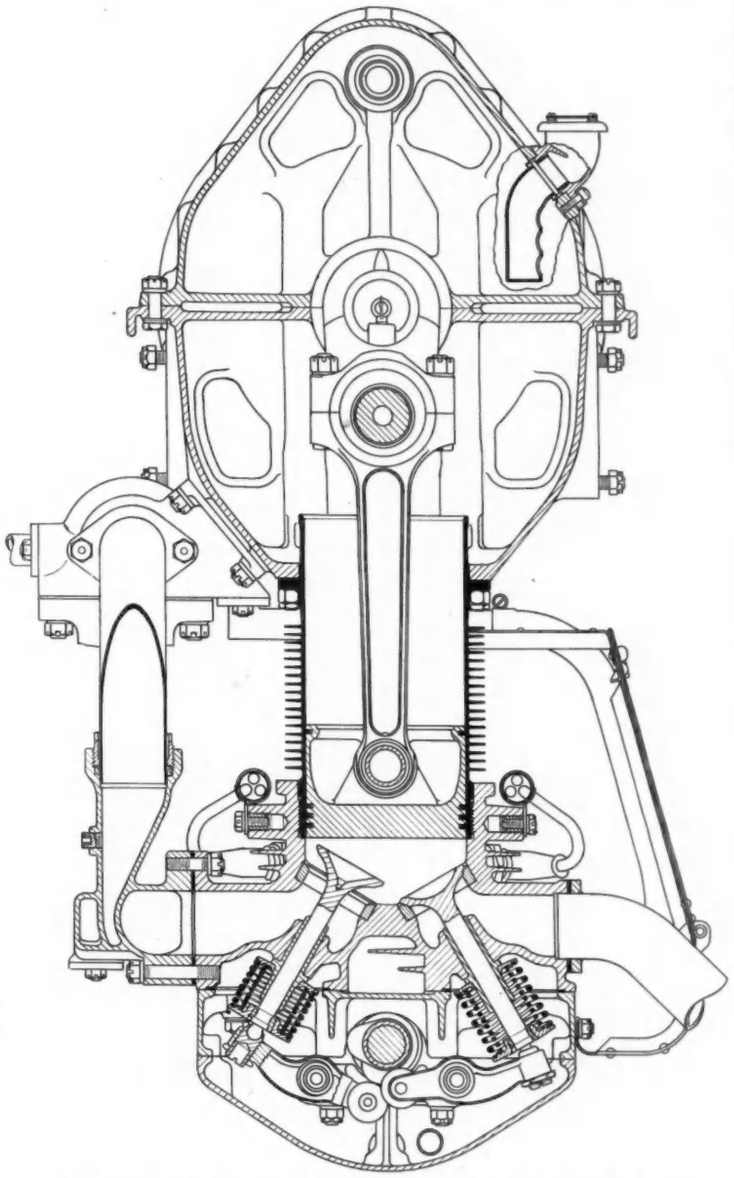


Longitudinal section of front and rear ends of Fairchild engine

forward and the other at the rear end of the camshaft housing, so that the housing will always be kept free of oil whichever way the engine may be inclined.

The fuel pump fitted is the C-5 design, of the gear type. A Stromberg NAR-4 carburetor is fitted. The inlet pipe is of the yoke type and the carburetor is located within this yoke and is bolted to a hot spot which in turn is bolted to the crankcase. The inlet pipe is flexibly connected to each of the two inlet manifolds by means of a packed joint with gland nut. The exhaust is on the opposite side of the engine from the inlet, and some of the exhaust gases are carried across to the inlet side by a pipe passing between cylinders Nos. 3 and 4, pass through the exhaust jacket on the inlet, and are then discharged.

Ignition is by two plugs per cylinder, one plug in each cylinder being connected to each magneto. The spark plugs are screwed into bronze inserts in the aluminum alloy cylinder heads which are secured by pinning. Both plugs are horizontal, substantially opposite each other, and located for accessibility. There is an adjustable link between the two magneto advance levers for synchronizing the double sparks by which the mixture is fired. The high tension cables from the two magnetos are led through metal conduits some distance forward along the top of the crankcase, then down on opposite sides of the crankcase closely following the contour of same, and finally through separate metallic conduits on both sides extending the length of the engine, and only a few inches from the spark plugs. The unsupported part of the cable between the outlet from the conduit and the spark plug terminal forms a simple arc of large radius.



Cross-section, showing valves and their actuating mechanism

The crankshaft is provided with a ball thrust bearing, and provision is made for an S.A.E. No. 1 taper for the propeller. An aluminum scoop is fitted to conduct the air from the propeller backwash transversely past the engine cylinders. The exact form of this scoop will probably vary with each design of plane to which the engine is fitted. Short stacks extend down from the exhaust ports, but a manifold can be fitted if desired. A breather is provided at both ends of the upper crankcase, one being shown in the transverse section.

The weight of the engine, dry, is 325 lb. Its rating is 110 hp. at 1950 r.p.m. and we are informed that during the 50-hour non-stop test the average power developed exceeded this rating by 2 per cent. The engine is intended primarily for use in training and sport planes.

Automotive Industries
February 8, 1930

Advantages of *Arc Welded Jigs*, *Demonstrated* in Westinghouse

Further development will be neces can be applied to general produc show reduction of 25 per cent

By J. R.
Superintendent, Manufacturing
Westinghouse Electric &

IN presenting this subject, I am not going to demonstrate welding in any respect, but I wish to discuss the application of welding to the building of jigs, fixtures and machine tools. This particular application was practically forced upon us about a year ago because it was necessary to manufacture this line of product on very short delivery.

When the idea was conceived to manufacture jigs and fixtures from structural shapes welded together, we built several of these jigs and put them through a very thorough test to see whether they would be suitable for our work. We tried these jigs for all the inaccuracies that are likely to occur due to warpage, distortion, etc., and then decided upon a definite program of manufacture which has given us extremely satisfactory results.

We find that with the welded structure we can obtain the most complicated jig in not more than one week's time. The average time is about four days, and you can readily appreciate what a decided advantage this is in the manufacture of any kind of product. These jigs are made from hot-rolled steel of the desired shapes and sizes and welded together. Where hardened pieces are required, they are made from tool steel, hardened and attached to the jigs. We experienced some trouble with the feet of these jigs, due to the fact that after annealing, these feet were too soft and chips on machine tools would become imbedded in them. To overcome this we made the feet from tool steel and heat-treated them before welding to the jig. They are then drawn to a scleroscope hardness of 45 to 50 and though of sufficient hardness they still can be machined.

Of course, when we adopted welded jigs and fixtures it was necessary to change our method of manufacturing them, in order to have the proper information on sketches sent to the shop. Accordingly, we incorporated in our standards book several sheets of instructions which, in addition to supplying the workmen in the shop with information, also standardized the manufacture of welded jigs and fixtures. Fig. 1 shows the various type of welds and the size of bead which is used on welded jigs and fixtures.

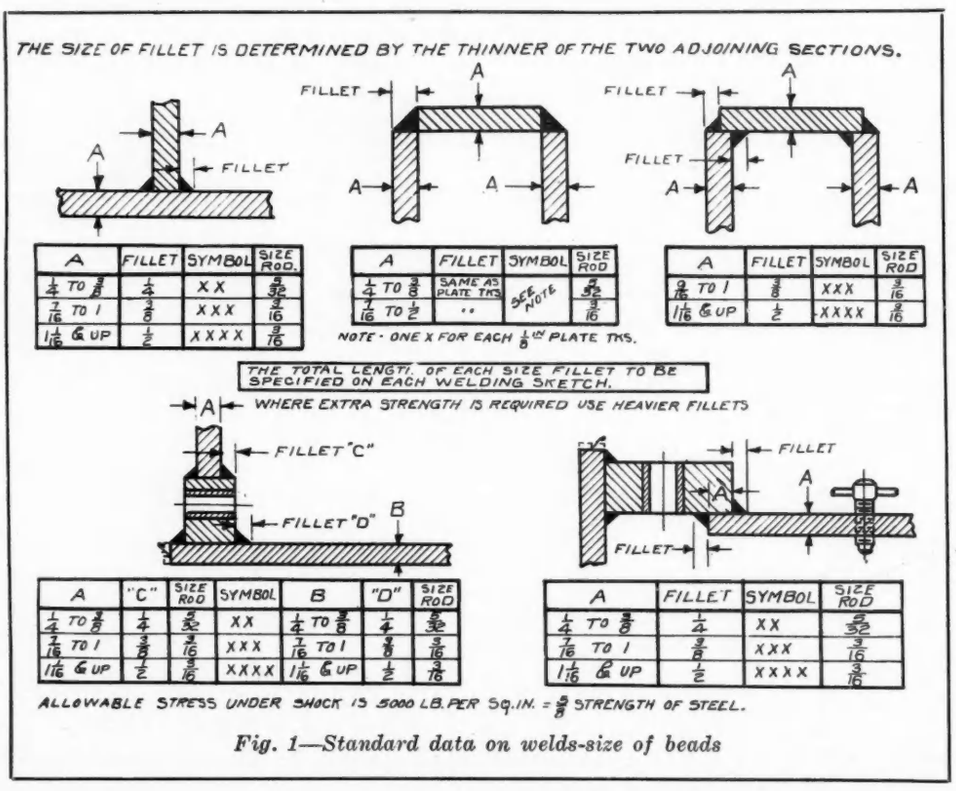

THE SIZE OF FILLET IS DETERMINED BY THE THINNER OF THE TWO ADJOINING SECTIONS.
FILLET
A
NOTE - ONE X FOR EACH 1/8" PLATE THS.
THE TOTAL LENGTH OF EACH SIZE FILLET TO BE SPECIFIED ON EACH WELDING SKETCH.
WHERE EXTRA STRENGTH IS REQUIRED USE HEAVIER FILLETS
FILLET "C"
FILLET "D"
B
ALLOWABLE STRESS UNDER SHOCK IS 5000 LB. PER SQ. IN. = 3/8 STRENGTH OF STEEL.

Fig. 1—Standard data on welds-size of beads

In order to avoid delays due to material being out of stock, we listed, in our standards book, a sheet showing the standard stock sizes of steel that are used for this particular method of manufacture.

When the designer makes his drawings of a jig, he lays it out without showing any particular method of construction. Therefore, it is necessary for the tool designer to make a separate sketch called a welding and machining sketch. This gives the detail construction and indicates what material is to be ordered. The material is then cut from the proper sized stock with a saw in case of bar stock, or with an acetylene torch in the case of plate. The parts

Fixtures and Machine Tools - Manufacturing *Plant*

sary before this type of construction tion of shop equipment. Costs in average, with less weight.

WEAVER
Equipment Department
Manufacturing Co.

are then assembled and completely welded together.

A sketch is made indicating the total length of particular size weld necessary to completely weld the jig. This is done for the convenience of the time-study supervisor, who estimates and sets a value upon the time it should take to manufacture the jig.

Of course, the question has come up frequently that it is not possible to test a weld without destroying it, and the workman must be relied upon for good workmanship. We realize this, and in order to control this phase we require that all welders stamp their work with a stencil. Periodically we run a test on welds, and if we discover any welding that is not satisfactory, the workman is required to take additional instruction or if he proves entirely unsatisfactory he is taken off the job.

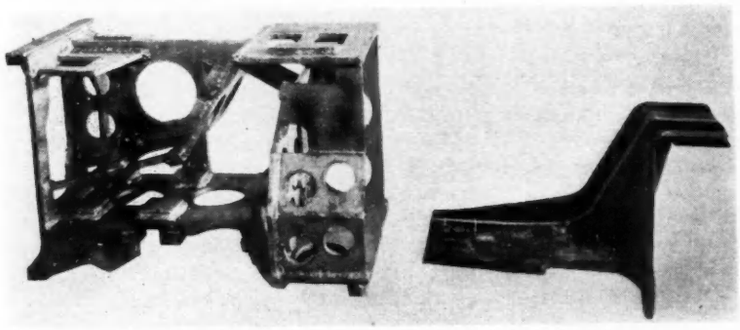


Fig. 4—Body of drill jig for bracket for talking movie machine. This jig is 15 in. x 23 in. x 12½ in. high and weighs only 120 lb. Bracket is shown at the right

Now I will try to tell and show you how the jigs are actually manufactured. In Fig. 2 is shown a machine used for cutting various parts from plate stock. We have several different types of these machines in this department for cutting any shape or size.

Fig. 3 shows a number of parts cut to size for a jig. Note that all the necessary large holes are cut by means

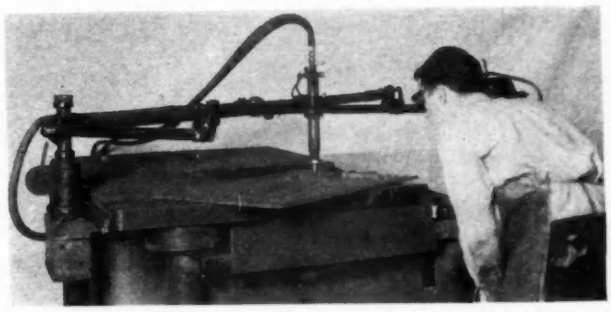


Fig. 2—Cutting out the parts with the torch

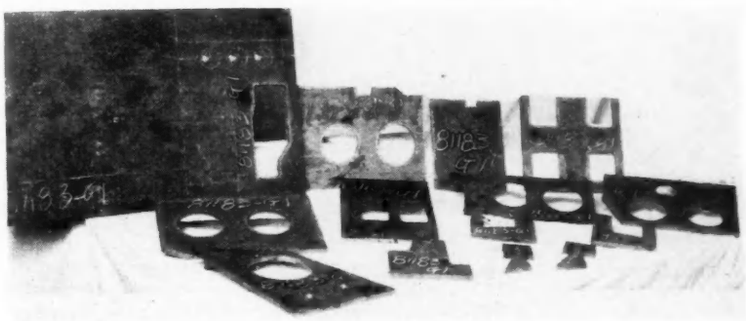


Fig. 3—Various details as cut with the torch, showing also one side marked off and drilled holes for starting the cut

of an acetylene torch before they are assembled into a jig.

The various parts are assembled by a mechanic and tack - welded just sufficiently to hold these parts together so that they are properly located and squared up. After the tack-welding, the jig is passed to a welder who completes the job by finish-welding.

Fig. 4 shows a jig completely welded, and you will note that although this jig is fairly large, it only weighs 120 lb. It is for drilling the bracket which is shown at the right of the jig.

The fact that these jigs are made from hot-rolled steel detracts somewhat from their appearance; also, certain strains due to the welding must be removed from the jig so it maintains its shape and size. To overcome these conditions we normalize all welded jigs to remove strains by heating the jigs in a furnace to a temperature of 1000 deg. Fahr., after which they are allowed to air-cool. Due to the use of hot-rolled steel and the normalizing, a certain amount of scale is present and must be removed. This is done by means of a sand-blast machine, and after the sand-blasting operation the jigs are spray-painted. The jig is sent to the shop for the regular machining, which is no different than it would be for a cast jig except that there isn't as much material allowed for finish.

To give you an idea as to what extent we have gone

on the welding of jigs and fixtures, I am showing herewith a jig weighing 1300 lb. in Fig. 5, the overall dimensions being 39½ in. x 51½ in. x 21 in. You will note that this is a complicated jig, and in order to make a casting it would take considerable time both in the pattern shop and in the foundry. This jig is built entirely of steel, using hot-rolled bar stock and plates. I wish to call your attention particularly to the bosses, which are made from hot-rolled steel cut off with a saw and welded in place.

In addition to the above, we have the advantage of considerably more strength and less weight with a jig made from steel. This is due to the fact that the jig can be made from thinner material and it is not necessary to increase the sections to reduce casting difficulties. It is also possible to place metal where it is most desired in order to make a stronger jig with the least amount of weight.

The construction of the tail stock is somewhat similar to the general design of all tail stocks with the exception that this one is welded from structural steel. It functions satisfactorily and, although the requirements are not as rigid as they would be on metal cutting machines, I do not see any reason why it could not be adapted without undue difficulty.

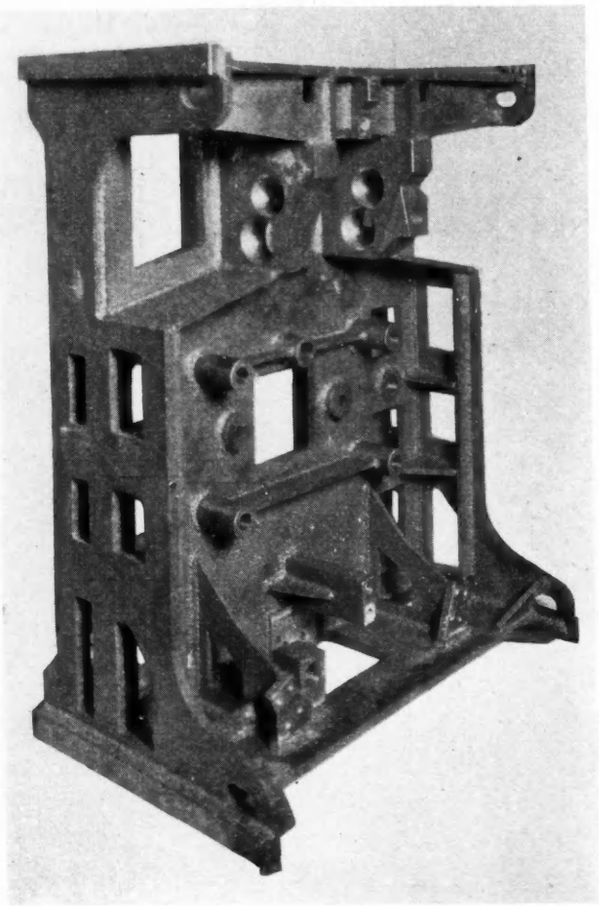


Fig. 5—Front view of drill jig for main base of oil circuit breaker type "B-32." Weight, 1300 lb.

I realize that some further development will be necessary before this type of construction can be applied to general machine tool construction. I am calling these facts to your attention because I believe they are successfully demonstrated in our shop and show the practicability of welded jigs and fixtures. I am building from 200 to 400 welded jigs and from three to six special machines per month. I have been able to build these tools in shorter time. I have been able to reduce the average cost approximately 25 per cent. I have been able to produce a jig and fixture that I believe is more desirable because it is lighter and as strong.

Washer Installations for Small Parts Production

CONTINUOUS automatic washing and rustproofing of roller bearings is now accomplished on the Blakeslee (Niagara) washing machine set-up, Fig. 1, recently installed for the Bower Roller Bearing Co., Detroit, Mich. The bearings are washed in the first machine with an oleum spirit solution, being carried on a special combination wire-covered roller conveyor. After passing through the washing machine they pass into the second machine where they are sprayed with the rust-preventing oil.

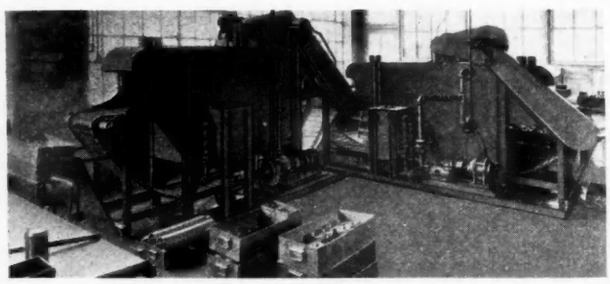


Fig. 1—Blakeslee (Niagara) Washer

Both machines have 2-in., 2-hp. motor and pump arrangements, with a ½-hp. motor for the conveyors. Small gear pumps return any drippage of oil or oleum spirits that gathers in the steel pans (in which the machines set) back into their respective tanks. Sediment chambers are externally located and have baffle and double screening arrangements.

Fig. 2 shows a Blakeslee washing machine which washes and dries not only bolts, nuts, rivets, etc., but also the metal containers on which these products are handled at the plant of the Gary Screw & Bolt Co., Chicago. It has a capacity of 5 tons per hour.

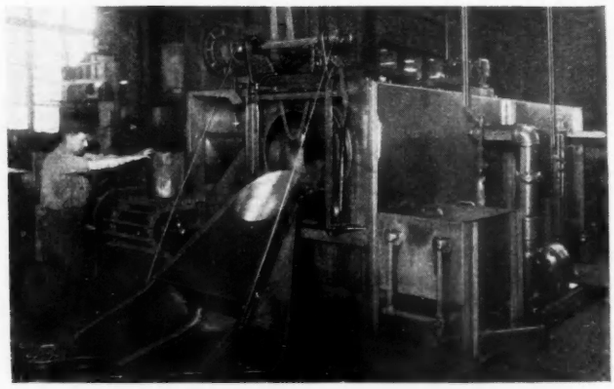


Fig. 2—Blakeslee Washing Machine

Changes in Sales Policy Requested By Dealers *at Convention*

Details of recommendations made to the National Automobile Chamber of Commerce were presented to the N.A.D.A. at Chicago during show week. Negotiations expected to continue.

By DON BLANCHARD
Editor, Automobile Trade Journal and Motor Age

DEALERS expect a new deal in 1930. They are looking to the factories for immediate changes in sales policies that will make it possible for them to earn an adequate return on their investments. In fact, right now they are more concerned about fundamental policy changes that will put the retail automobile business on a sound basis than about any effects the current slump in sales may have on them. This summarizes current dealer sentiment as reflected throughout the sessions of the thirteenth annual convention of the National Automobile Dealers Association, held during Chicago Show week.

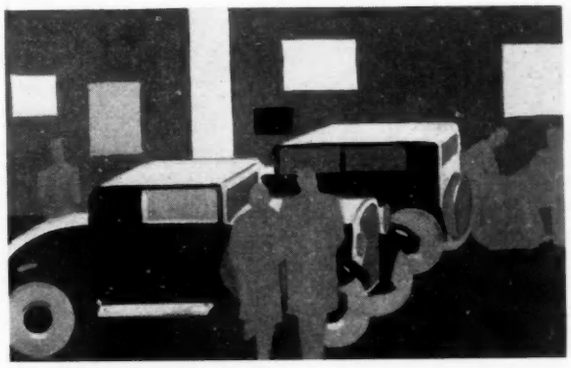
Policy changes which the N.A.D.A. believes factories should make were covered in detail by President Warren E. Griffith in his report on the recommendations made to the National Automobile Chamber of Commerce. A digest of these recommendations follows:

1. Production should be kept just under the normal economic demand.

Dealers Should Profit

2. Factories should insist not only that dealers make money, but they they make a definite amount of money in relation either to their sales or investment.

3. Dealers should be appointed only upon proof of actual net worth ample to handle number of cars contracted for. The. N.A.D.A. believes that a dealer should have capital available for merchandising operations equal to one-eighth of the number of cars he contracts to sell, figured at list price.



4. Factories should require dealers to submit proof of profitable operations every month. Failure to keep books and furnish monthly statements should be penalized.

5. Dealers should be required to "break even" on used cars as a starter and later to show a gross profit in this department.

6. Industry should return to closed territory contract. President Griffith sees closed territory contracts as the only effective way to stop new car bootlegging. He showed a list of 2000 cars sold in Toledo during a part of 1929 which were not sold by local dealers. These sales represented 10 per cent of total volume in Toledo during the period. Closed territory contracts also were urged to protect the city dealer against the infringement of the low-cost country dealer who is able to make larger allowances and hence to get business away from the city dealer.

7. Dealers should take a mark-up on freight.

Fleet Buyers' Discounts

8. Fleet buyers' discounts should be discontinued. A resolution was adopted unanimously by the convention condemning these discounts and urging the factories to eliminate them. This point will be discussed in greater detail later.

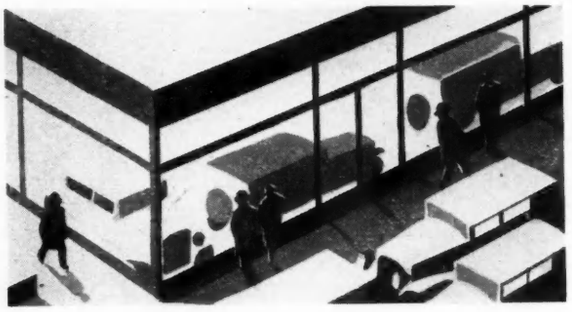
9. Clean-up cars should be sold to dealers at clean-up prices. In connection with this recommendation, President Griffith stated that Packard had blazed the way. He said that Packard dealers actually looked forward to the annual clean-up and that there were never enough of these clean-up cars to go around.

10. General adoption of factory junking plans. It was stated that within six months 90 per cent of the factories would be operating plans of this character.

While this program may be criticized on the basis that it lists a lot of things for the factories to do and says nothing about the dealer's duties, the trade is not unaware of its responsibilities. In concluding his report, President Griffith said: "Suppose the factories do some of these things which will help us make more money and you and I and other dealers keep on doing the damn fool things we have been doing, it will be completely lost." He also urged distributors to get out into the field and call on their dealers personally, for, as he pointed out, the distributor has no right to ask the factory to do things for dealers that he doesn't do himself.

Following this report, Alfred Reeves, general manager of the National Automobile Chamber of Commerce, was introduced as the official representative of the factories who would tell the convention what the factories

can do, when they are going to do it and what they can't do. Mr. Reeves said the sales managers' committee of the N.A.C.C. was studying the recommendations and hoped to hold another meeting soon at which an announcement could be made concerning them. Some of the recommendations, he continued, already have been adopted by certain manufacturers. He stated further that the directors of his organization were agreed on the need for better accounting and had asked the sales managers' committee for recommendations. The directors also are considering ways and means of getting new and used car stock figures. Mr. Reeves concluded with a statement that there was much in the N.A.D.A. recommendations that can, should and will be adopted.



Better days are ahead for the automobile dealer, according to Clarence E. Eldridge, sales manager of the Reo Motor Car Co., feature speaker at the annual banquet which closed the convention. In his opinion, the lesson of 1929 has registered and will result in policies that will make it possible for the dealer to make a better return on his capital. These improved conditions must be created, he said, for one more such glorious record-breaking year as 1929 and the automobile dealer will be undone. He argued against any further reduction in prices, as lower prices will not increase the total market, since the used car makes it possible for anyone who can afford to operate a car to have one.

He also condemned frequent model changes made simply for the purpose of making people dissatisfied with what they have. Because of the improvement in the low-priced cars, the time when change simply for the sake of change would increase total sales has gone by. Style changes may divert sales from one make to another, but they do not increase the total. As Mr. Eldridge sees it, one of the big things that has come out of 1929 is the principle of collective bargaining—the right of dealers to sit down with manufacturers to formulate policies has been recognized.

Fleet Buyer Discounts

Fleet buyers' discounts are a sore spot with the trade. This was indicated not only by the results of a nation-wide survey presented by Capt. W. A. Williamson, vice-president of the Texas Automotive Dealers Association, but also by the discussion on the convention floor.

Dealers contend that inasmuch as the fleet discount is more than their net profit, the business is handled at a loss. The discount does not increase the total number of cars sold, nor does it give any maker a competitive advantage, as all factories provide for a price concession to the fleet buyer. Moreover, where a trade-in is involved, as is very frequently the case, the fleet buyer often shops around the territory until he gets the highest allowance for the used car. This means that in addition to giving a discount the dealer to get the business may have to buy it with a top allowance to meet the competition of some other dealer, perhaps handling the same make. As a result of all these conditions, neither the dealer or his salesmen are on their toes for fleet business. In Captain Williamson's opinion, the elimination of the fleet discount would be one way factories could show the sincerity of their expressed desire to help dealers.

The manufacturers' views on fleet discounts were presented by Earl Dawson, director, fleet sales, General Motors Corp. He said that quantity discounts were a recognized business practice; that fleet business has a stabilizing influence because it comes in good times and bad, and that properly handled, the business is profitable to the dealer. Analysis of 3000 dealer statements showed, he said, that the dealers made more money than they would have if they had not handled the fleet business.

Before the fleet contract was introduced, many dealers gave discounts and, moreover, Mr. Dawson stated that he has yet to find a dealer who will not make a concession for volume. Without the fleet contract there would be a great waste, as dealers and salesmen would be contacting local officials who do not have the final buying authority. This authority usually is located in the central purchasing department in New York, Chicago or other big city. The factory contacts this central purchasing department so that when the requisition for a car or truck comes in from a local official as a result of some dealer's efforts, it is approved, whereas without the factory's work it might be disapproved by the central office.

For some months past General Motors and, more recently, Ford, have been making the fleet buyers' discount apply only to the difference between the list price and the allowance on the used car where one is involved in the deal. Factories should exercise great care in making these fleet contracts to make sure that the buyer qualifies on a volume basis, Mr. Dawson said, the General Motors policy being to curtail the number of fleet contracts as much as possible. Incidentally, he said that there were 540 companies in the United States whose annual purchases totaled $65,000,000.

It might be pointed out here that while fleet business is wholesale from the standpoint of the manufacturer, it often is a retail proposition for the dealer. For example, according to President Griffith, he has never delivered more than one car at one time to one buyer under a fleet contract. Hence, perhaps it would be more equitable for the manufacturer, if he feels that some price concession should be made to the fleet buyer, to pay the concession out of his selling price to the dealer rather than require the dealer to pay it out of his gross.

Tate on Program

One of the interesting features of the convention was a talk by Frank R. Tate, former Dodge Brothers dealer in St. Louis. Most of his criticisms of conditions facing dealers are covered by the N.A.D.A. recommendations. Among the suggestions he made were that dealers establish high-grade used car departments adequately manned with salesmen, and that they do a better job in the service department. In connection with the latter point he emphasized the desirability of providing facilities for handling minor services on all makes along super-service lines. This business is profitable in itself and also stimulates car sales, he said.

A resolution was adopted authorizing the president to appoint a committee to continue conferences with the manufacturers.

Retort Induction Manifold Developed By Australian Engineer

Hamilton-Grapes system utilizes a combustible fuel mixture in the carburetor without extraneous heat supply. Unvaporized flow is automatically controlled by a thermostat.

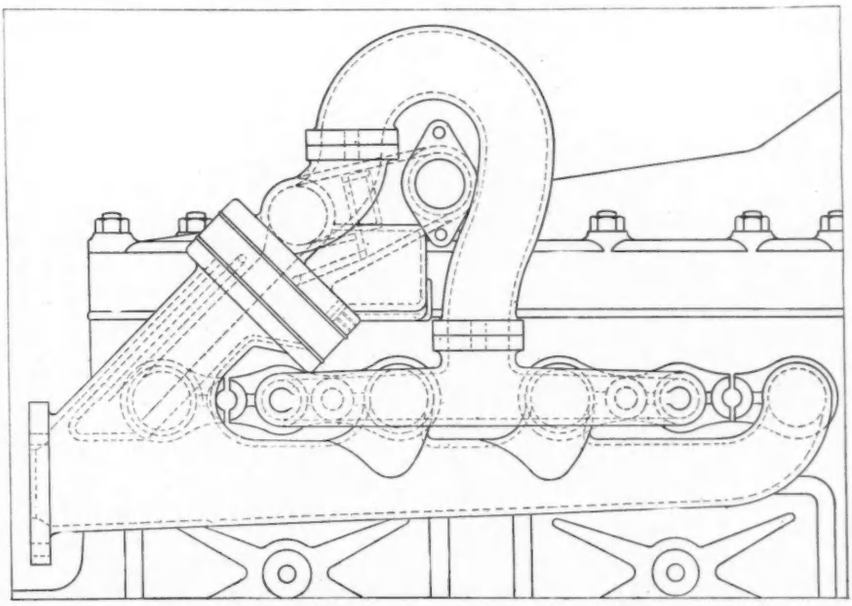
G. HAMILTON-GRAPES, an Australian automotive engineer, who at present is located at the Carroll Co., Raleigh, N. C., has developed what he calls a retort induction manifold, of which several illustrations are shown herewith. By the Grapes system a combustible mixture is formed in a carburetor without any extraneous heat supply. Before the mixture enters the engine, however, the unvaporized fuel is withdrawn from it by means of a separator. This unvaporized fuel flows by gravity to a retort in which it can be vaporized by heat from the engine exhaust, the flow being automatically controlled by a thermostat.

When the engine is first started from cold, a considerable amount of the fuel supplied by the carburetor remains unvaporized. This fuel accumulates in the storage pocket until the cylinder walls of the engine attain a predetermined temperature. When this temperature is attained, a thermostat opens a valve which meters the fuel thus accumulated into the feeder trough of the retort. Mr. Grapes claims that in this retort, in the presence of a counter-current of turbulent air, a stable vapor is formed. Air admission to the retort is controlled by a valve which is interconnected with the throttle valve. The vapor thus formed is mixed with the cold gaseous mixture that comes directly from the carburetor. To maintain a proper relation between the mixture directly from the carburetor and that from the retort, the retort air valve is so controlled that the flow of air through it is a maximum at half throttle opening, while at full throttle and at idling it is a minimum.

The drawings reproduced herewith show the separator, the retort and the entire assembly of manifolds, separator and retort for a four-cylinder engine. The function of the separator, to which the carburetor is bolted directly, is to trap the larger fuel globules in a pocket by the inertia effect. The smaller globules of unvaporized fuel are separated a little farther on in a secondary separator chamber, located immediately ahead of a 180-deg. turn in the inlet passage, these smaller globules being thrown by centrifugal force directly into the mouth of the retort.

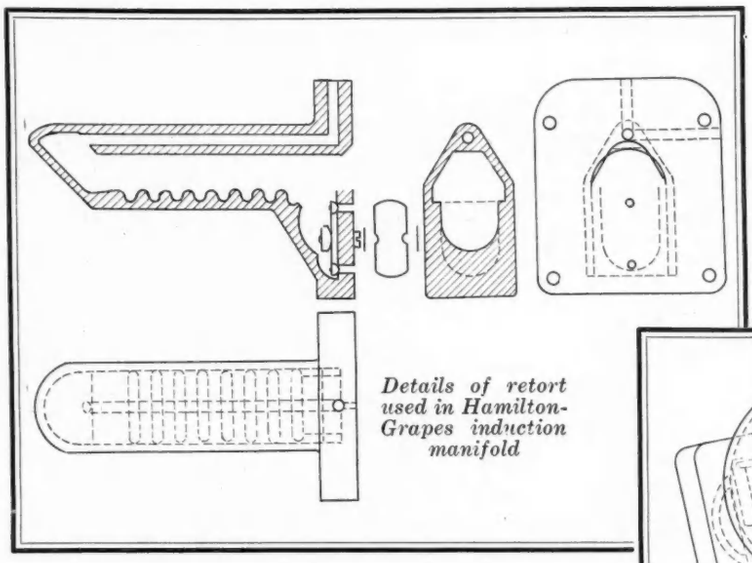
In starting up, when the choke is being used, the higher boiling-point fractions of the fuel are caught by the trap and conveyed by it into the secondary storage pocket, which for a 1-in. carburetor should have a capacity of between 3 and 6 cu. in. This storage pocket is located outside of, but adjacent to, the inlet manifold.

When the engine attains the proper temperature, the thermostat controlling the outlet from the storage tank functions, and the accumulated fuel is metered at a predetermined rate into the retort. This retort, which extends down at an angle of 45 deg. into a pocket formed on the exhaust manifold, is described as consisting of nine stills. The unvaporized fuel enters the retort at the upper end, where the temperature is the lowest, and the lowest boiling-point fractions will evaporate first, while the higher boiling-point fractions will descend into the lower stills and will be evaporated by the higher temperature there.



Assembly of inlet and exhaust manifolds, separator and retort

Whenever the engine is running, there is a partial vacuum in its inlet manifold with which latter the retort communicates. Air is, therefore, being drawn into the retort through the drilled passage. This air, of course, mixes with the vapors formed from the heavy fuel fractions in the retort, the mixture



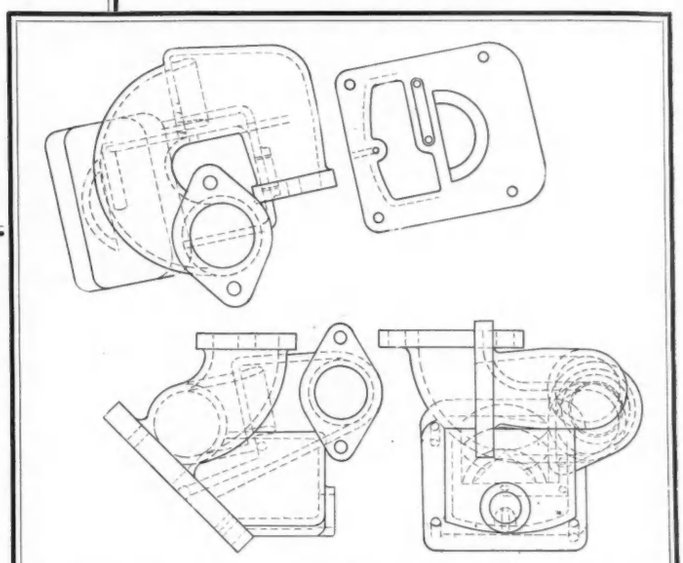
Details of retort used in Hamilton-Grapes induction manifold

then passing upward into the separator, where it combines with the stream of combustible mixture from the carburetor.

It is claimed that no carbon deposition takes place in the retort, and that the resultant mixture possesses a markedly anti-detonating character.

The general advantages claimed for this system of mixture preparation are that it tends to facilitate starting, gives very good idling and slow running characteristics, and assures a high volumetric efficiency (since the inlet temperature is comparatively low), smooth operation of engine, rapid acceleration at all times, and a reduction in crankcase dilution, even with the use of low-grade fuels.

In the drawing on the preceding page the various elements of the system are shown assembled on a four-cylinder engine. The carburetor bolts against the oval flange shown in the center and the mixture flows from there through the separator (to the left) and then through the curved inlet pipe down to the inlet manifold. The relation between the separator, still and manifold pocket is clearly shown in the drawing.

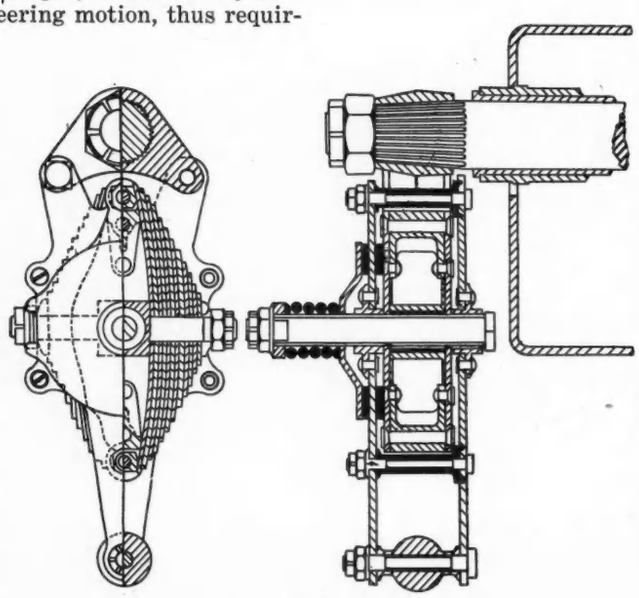


Drawing of separator of the Hamilton-Grapes system

Frictional Damping Device

THE idea of incorporating a frictional damping device in the steering mechanism in order to control shimmy is not new, but the usual arrangement, while effective as a shimmy damper, unfortunately also increases the resistance to steering motion, thus requiring greater effort on the part of the operator in guiding the car. This is particularly objectionable now that the use of balloon tires and the increase in the number of lady drivers make it desirable to reduce the friction in the steering system.

These objections seem to be overcome by a new resilient steering arm which has been patented in England recently by H. F. Royce, chief engineer of Rolls-Royce, Ltd. (British patent No. 318,374). Referring to the drawing of the steering arm reproduced herewith, the steering gear shaft is serrated at its end in the usual way and has a bracket mounted upon it, to which are secured two disks. These disks or plates support a spindle on which is pivoted a member capable of a limited angular motion, between two leaf springs, which latter tend to maintain it in a central position. The steering drag link connects to the outer end of this member. Presumably the theory is that any incipient shimmy will cause the pivoted part of the steering arm to oscillate on its pivot, since the steering gear is more or less self-locking and prevents the oscillations from being transmitted to the steering wheel. Any such oscillation of the pivoted member is damped out by friction members which are interposed between it and disks which are incapable of angular motion around the pivot. The various friction members are pressed together by a coiled spring, as indicated.



Royce cushioned and damped steering arm

Machines for *Determining Torsional* Fatigue *Developed* in Germany

One instrument permits finding value of minimum alternating load resulting in change of deflection due to fixed initial load.

UNTIL recently all endurance testing machines or fatigue testing machines subjected the specimens tested in them to bending stresses, and while the results obtained with them are valuable in judging the characteristics of materials which in service are subjected mainly to bending stresses, they can hardly be considered a reliable index of quality for materials working in torsion. It is well known that the behavior of materials is quite different when steady torsional loads are applied than when the specimen is subjected to steady bending stresses, and the conclusion seems justified that endurance characteristics under torsional and under bending stresses also must be quite different. Evidently it is most logical to test materials that are worked in torsion in service in torsional testing machines.

Two machines for testing specimens for endurance under alternating torsional loads have been developed in Germany recently. One of these is being manufactured by the Losenhausenwerk of the Duesseldorf Machine Works Co. (represented in this country by Alfred Suter, of 200 Fifth Avenue, New York), and has the characteristic that it subjects the specimen to a fixed preliminary torsional load, superimposed upon which is a rapidly alternating torsional load. It is claimed that this method of loading most closely simulates conditions met with in practice.

The alternating torsional load is produced by an oscillating electric motor. Both alternating and direct current are required in the operation of this machine, but in cases where no direct current supply is available, the manufacturer furnishes a small rectifier which transforms alternating into direct current. Only single-phase alternating current is required, and in case the supply is three-phase, the machine is connected into one phase of the supply circuit.

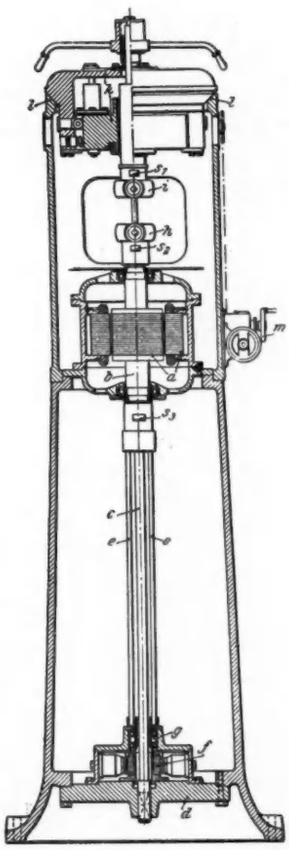


Fig. 1—Sectional view of Losenhausen torsional endurance machine

A sectional view of the complete machine is shown in Fig. 1. It is completely inclosed and only the holders for the specimen are accessible from the outside. A steel shaft *c* is secured with its lower end in the base plate *d* of the machine. This shaft, which is piloted by two roller bearings, carries the armature of the motor near its upper end, and has the lower specimen holder *h* fixed to its upper end beyond the armature. A number of spring bars *e*, *e* are rigidly fastened to the armature shaft *b* directly below the armature. At the lower end the spring bars carry a hollow cylinder which forms one member of an eddy-current brake or damping device.

If current is applied to the motor, its armature and the lower specimen holder *h* connected thereto start oscillating, and shaft *c* is twisted accordingly. The oscillations are communicated to the spring bars by means of a suitable coupling, and the oscillations of the bars are damped by the damping device at the lower end thereof. The assembly constitutes two different oscillating systems coupled together, which in conjunction with the damping device is said to assure stability of oscillation in spite of slight changes in the current supply. The upper specimen holder *i* is fastened into the head of the machine, which is made in two parts and can be moved angularly with relation to the machine proper by means of a small electric motor, through the intermediary of a worm gear. This serves to apply the initial fixed load. The upper holder can also be adjusted vertically by means of a four-armed lever, which facilitates insertion of the test piece. When the specimen breaks, the machine is stopped automatically.

Three mirrors are provided in the machine, marked s_1, s_2 and s_3 respectively, in the sectional view, one being secured to each of the two-test piece holders, and the third to the coupling on the armature shaft to which the torsion-moment measuring bars *e*, *e* are fastened. All three mirrors serve to measure angles of deflection, which are read with the aid of a scale and telescope. The difference between the deflections of the upper and lower specimen holders is a measure of the twist of the test specimen. The deflection of the lower holder is a measure of the torsion moment on the test specimen, while the third mirror, below the armature, serves to measure the alternating torsion moment by measuring the range in the angle of twist. A beam of light is thrown onto this mirror and reflected by it onto a transparent scale. When the machine is in operation and the motor armature, therefore, is oscillating, this spot of light is stretched out to a band of light of a certain width, and the width of the band in conjunction with the distance between scale and mirror gives the value of the angle of twist. This deflection is limited to about 3 deg. to each side of the center, which corresponds to a scale

deflection equal to 16 in. according to this method.

All the control and measuring devices required with the machine are arranged on a control stand located about 6 ft. from the machine proper (see Fig. 2). The control devices include a double switch, by means of which both the alternating and the direct current are thrown on simultaneously, this switch opening automatically when the specimen breaks. Adjustment of the torsional load is effected electrically by varying the resistances in both the direct and the alternating current circuits, coarse regulation being effected by cutting resistance units in and out, while for close regulation a resistance with sliding contact is used.

In making a test, after a test piece has been inserted in the holders, both mirrors are set. The upper head is then caused to turn through a certain angle by pushing on a push-button switch, this operation applying the so-called fixed preliminary load. The deflections of the mirrors on the two test-piece holders are then noted down, the difference between these two deflections measuring the angle of torsion of the specimen, while the deflection of the upper holder is a measure of the torsional load in lb.-ft. A small alternating load is then applied for about 10 sec. and then removed, after which the static load is checked. If there has been no change in this load, a somewhat greater alternating torsional load is applied, and this load is increased stepwise until the check measurement shows a decrease in the preliminary load. This shows that the endurance limit has been exceeded and that there has been a change in the molecular structure of the specimen. Such series of tests can be made successively for various preliminary torque loads, and data obtained for plotting a curve of critical alternating loads against preliminary loads. After a little experience, usually only five successive dynamic loadings are required for the purpose of finding the critical load.

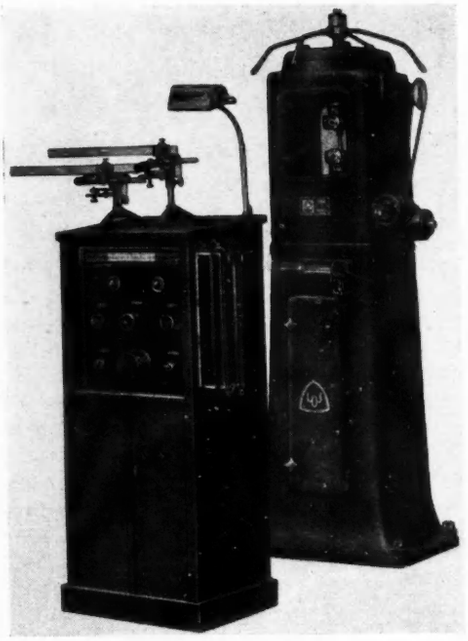


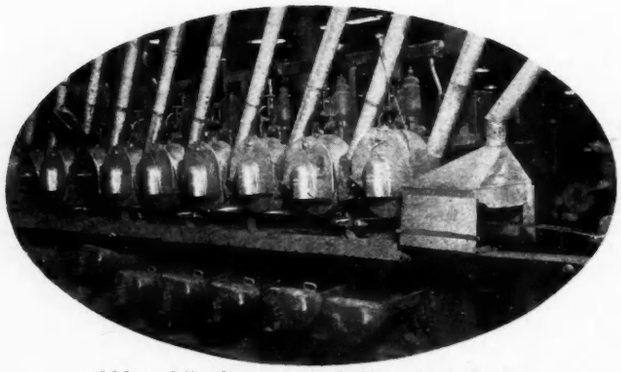
Fig. 2—Losenhausen torsional endurance machine with control stand in foreground

The other machine referred to in the introduction is being manufactured by the Carl Schenk Foundry & Machine Works, Inc., of Darmstadt. A cylindrical test specimen is used and is coupled to a measuring spring bar which forms an extension of it, the combined unit being provided with flywheel-like masses at both ends. When the combined bars are subjected to torsion, the flywheel masses turn in opposite directions, and the masses are so proportioned as to give the whole a natural rate of oscillation of 3000 per min., the joint between the test bar and the measuring bar forming a nodal point and remaining at rest.

Oscillations are induced by means of a pair of centrifugal forces. A particular advantage of this machine is said to be that a diagram of the internal molecular work is being traced. By means of an ingenious optical device, consisting principally of two rotary mirrors, the diagram of energy absorption is traced on a plate of ground glass. This diagram is very similar in form to the hysteresis diagram obtained when a piece of iron is subjected to varying magnetizing forces, from which it is believed that the internal actions are about the same in the two cases. The diagram, therefore, is called an elastic hysteresis diagram. The area of the hysteresis diagram is a measure of the internal work, hence, in any particular test, if the area is small, or even zero, it may be concluded that no work is being done in changing the molecular structure of the material, and that under such conditions of operation there can be no fatigue failure. With increasing area of this diagram the endurance limit is being approached, for which reason the hysteresis diagram may be considered a criterion of the fatigue resistance. This machine therefore is of the recording type.

Automatic Bumper Grinding Installation

A NOVEL way to handle and grind bumpers is pictured in the accompanying illustration. Oldsmobile has found it to be an effective production layout. The equipment consists of a short, endless belt conveyor carrying bumpers under 12 individually mounted wheels. The wheels are counterweighted and arranged to move up and down so as to follow outline of bumper bar.



Oldsmobile bumper grinding installation

This installation embodies a number of important features. It is full automatic and requires loading and unloading only. The multiplicity of wheels makes it possible to reduce the size of cut, thus improving the finish and increasing the life of each wheel. Again, production is never tied up because wheels can be replaced while the work is in progress.

Motor Industry in Great Britain Reached *High Level in 1929*

Prospects for 1930 are seen as not very encouraging, although present boom psychology in England may be reflected in increased passenger car sales.

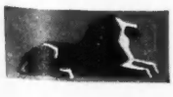
"IN general, the prospects of a further advance of the British motor industry for 1930 are not very encouraging. In 1929 the industry, as a whole, reached a very high level of activity. Much of this was no doubt soundly based, but in the private car section particularly it is difficult to say how far sales were stimulated by the prevalent speculative boom psychology. If to any great extent, a corresponding reaction may be expected in 1930. The basic competitive position is certain to be keener than ever before, both at home and abroad," says the British weekly, *Engineering*, in a review of the activities of the British motor car industry during the past year, published in its issue of Jan. 17. One of the important indices of the status of a British industry is the number of workers employed by it, on which figures are published from time to time by the Minister of Labor. Taking 1923 as the basis of comparison (100 per cent), the average number of workers employed in the motor car and commercial vehicle industries in nine districts was 123 per cent during the first half of 1928, 120.4 per cent during the second half; 133.1 per cent during the first half of 1929 and 131.6 per cent during the second half of 1929.

A separate report was made for persons in the motor, cycle and aircraft industries, insured, unemployed and employed, during the month of July of each year. During July, 1929, the number insured was 245,410, the number unemployed, 17,614, and the number employed, 227,796, the latter figure being a gain of nearly 30 per cent over 1923 and of 7 per cent over 1928.

Greater Gain Noted

The gain is really somewhat greater by reason of the fact that, in the latest census, persons over 64 years of age are not counted, while previously they were. Summarizing the employment figures, *Engineering* states that they show a very marked increase in activities during the past year, a resumption of the upward trend which has come to be regarded as usual in this industry, and a number employed not far short of that during the boom year 1920.

The total number of private passenger cars manufactured in Great Britain during the business year which ended Sept. 30, 1929, has been given provisionally as 182,256 by the Society of Motor Manufacturers and Traders, which compares with 165,352 for the preceding calendar year.



In England the business year of the motor industry begins on Oct. 1, which is due partly to seasonal changes in the demand and partly to the fact that the national motor car show, which is held annually at Olympia, occurs generally in that month, the date, of course, having been selected as most convenient to the British industry. In the future the society will, therefore, report production figures for this business year rather than for the calendar year. The rate of increase in passenger car production is slightly greater than the rate of increase in employment.

During 1929 Great Britain exported 24,197 complete passenger cars and 9901 chassis, a total of 34,098, which is an increase of almost exactly 30 per cent over the previous year. Whereas as recently as 1926 and 1927 the number of chassis exported was almost equal to the number of complete cars, there has been a heavy shift toward complete cars during the past two years. The drop in the number of chassis exported is said to have been due mainly to the collapse of the Australian market between 1927 and 1928, Australia taking chassis mainly and supplying the bodies itself. While there has been a slight improvement in the Australian market since that time, it is said that poor times continue there and the immediate outlook is not promising. Taking complete cars alone, the increase during the year was even more than 30 per cent, and was due to a general expansion of all markets, the Irish Free State playing a predominant role.

Most of the increased production of passenger cars by British makers during the year 1929 was consumed by the home market, however, and the number of cars of this type registered increased from 900,557 to 1,000,000. This increase of 100,000 in the registrations corresponds to total sales in the British market of 169,653 cars, of which a considerable number were supplied by non-British manufacturers.

Total imports of cars and chassis have shown a gradual decrease during the past three years, however. From 25,112 in 1927 (18,194 complete cars and 6918 chassis), the figure dropped to 22,582 (14,136 complete cars and 8446 chassis) in 1928 and to 21,531 (11,416 complete cars and 10,115 chassis) in 1929.

A table is given showing that the total number of passenger cars exported by all countries in 1929 amounted to 552,998, of which the United States exported 375,000 and Canada 71,000.

The commercial vehicle industry of Great Britain continued to maintain a high level of activity in 1928, in the light and heavy branches, while in medium-sized vehicles a decline was noted.

Automatic Annealing Furnace Cuts

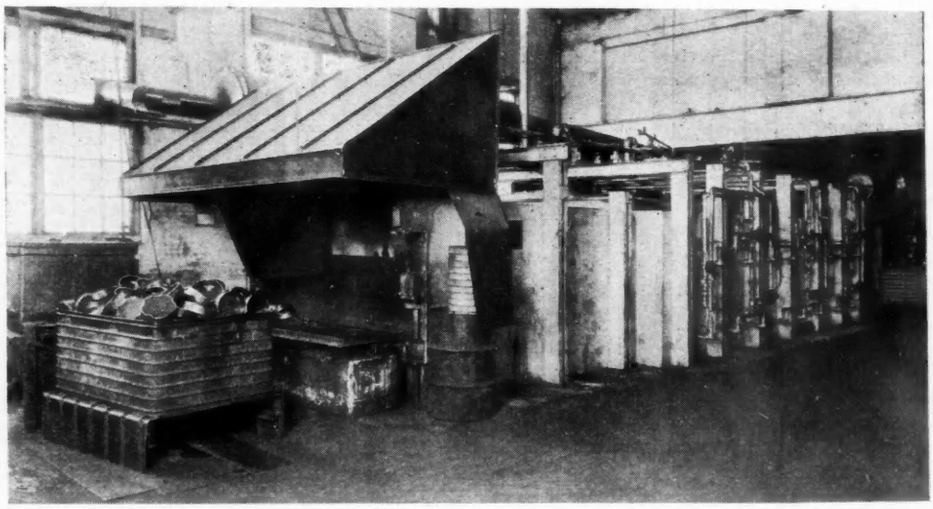
Separate processes on two Cadillac units manufactured by the Wire Wheel Corp. of America, in its Buffalo plant, reduced to 12 and four from 18 and 11 respectively, by new layout.

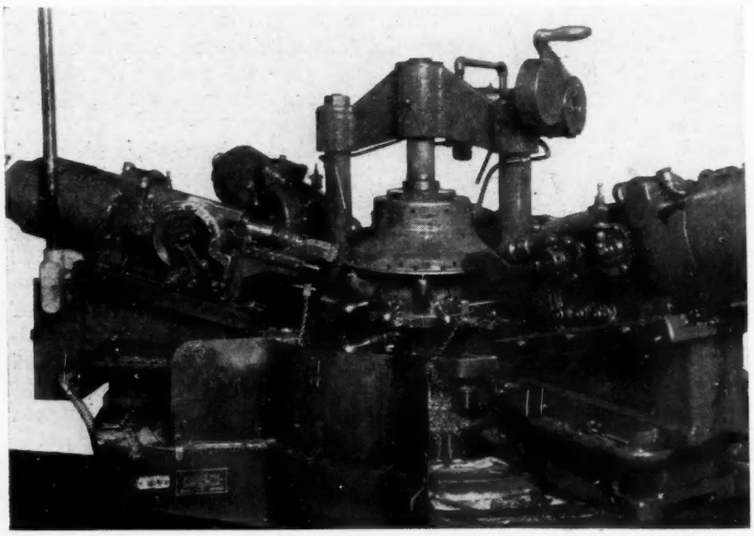
WIRE wheels were pioneered in this country by the Houck Manufacturing Co. and the Wire Wheel Corp. of America, Buffalo, N. Y., of which the former was later absorbed by the latter. At present the Wire Wheel Corp. of America is a division of the Kelsey-Hayes Wheel Corp. of Detroit. It has a capacity in excess of 40,000 wheels per month, and its plant is divided into the following manufacturing departments: inner hub machining, hub-shell machining, hub-cap machining, rim punching, wheel assembly, enameling, plating, steel press department and foundry.

New methods which reduce the number of manufacturing operations are being devised at this plant continually and the operations on the hub shell of the Cadillac are a good example. The shell formerly used on this car required 18 different operations and processes, including four anneals, while for the present shell only 12 are needed, including three anneals. Similarly, the operations on the insert which forms an integral part of the shell, have been reduced from 11 to 4.

These operations include some severe draws, and the annealing between these must be very carefully carried out. The furnace used is automatic and continuous both as to operation and temperature control, and was designed and built by the Surface Combustion Co. of Toledo, Ohio. It is 43½ ft. in length, while the width and height are 8½ ft. and 3 ft. respectively. The work is pushed through with a mechanical pusher, motor-operated, through a speed-reduction gear train. The motor and pusher operate intermittently, with a time-clock control by which the period the work remains in the furnace is regulated.

The furnace is of the counter-flow type. It is divided into 2 sections longitudinally, a separate line of work passing continually through each section,





(Above) Annealing furnace of the counter-flow pusher type with automatic temperature control. The work is pushed through with a mechanical pusher, motor operated, through a speed reduction gear train. The motor and pusher operate intermittently, with a time-clock control by which the period that a lot remains in the furnace is regulated

(Left) Drilling spoke holes with a Kinsbury multiple-spindle drilling machine. The machine consists of a horizontal table with 6 individually motor-driven drilling spindles mounted. The shell is held in a quick-acting index fixture and 6 spoke holes are drilled at one time

Wire Wheel Production Operations

By W. M. HEPBURN
Vice-President, Surface Combustion Co.

the two moving along parallel lines, but in opposite directions. The hot zone is in the center and the heat passes toward both ends or into the other two zones which are known as heat interchangers, for at these points considerable heat is given off by the hot outgoing work and is absorbed by the cold work entering. This adds considerably to the efficiency of the furnace.

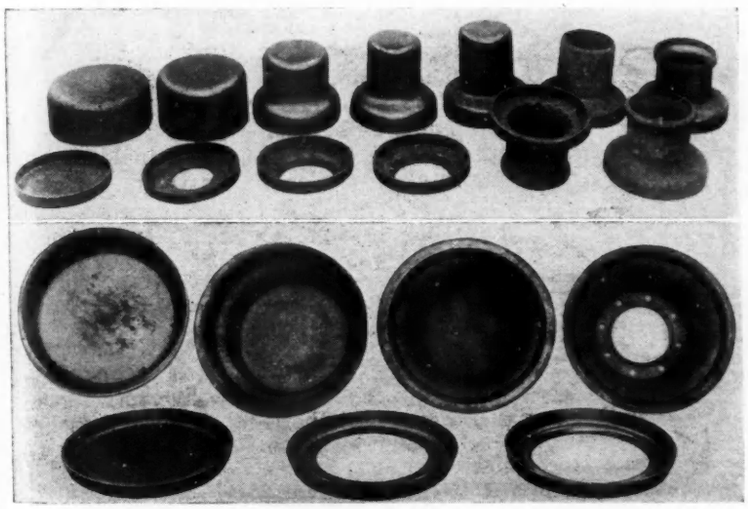
The center or hot zone is 20 ft. long and the heat interchange zones are 11½ ft. in length each. Six metal rails are laid on the hearth: in the hot zone these are of alloy steel while in the other two parts they are of cast iron. They project 4 ft. beyond each end of the furnace and these extensions form loading and unloading platforms. The hearth is supported by piers.

The operation of the furnace is as follows: Trays are placed on each platform in front of the pushers and are loaded with work. At the proper time a clock opens a relay which in turn starts the lifting of the motor-operated doors. On reaching the raised position the doors make contacts which start the pushers on the forward stroke. When the stroke is nearing completion, the pushers make contact with a limit switch which reverses the stroke action, causing the pushing face to return to the starting position. At this point, the contacts of the motors operating the doors, are broken and the doors are automatically closed.

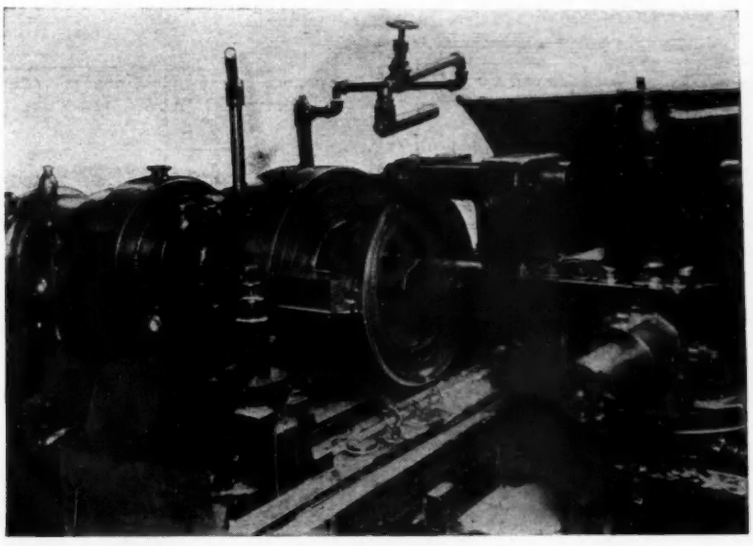
The loaded tray under the door at the discharge end is removed manually before the door closes; it is then unloaded, pushed over in front of the pusher on the adjoining charging platform, loaded and left for the cycle described which will automatically take place after the proper time interval, due to the time clock.

Heat is supplied in the hot zone through 32 gas burners, 16 on each side. These are staggered, so that they fire both below the hearth and above the work, in the latter position tangentially to the arch of the roof. This promotes circulation of the hot gases, which is vital to uniform heating. The burners are manifolded to inspirators, in groups of one, two and three, and are so arranged that when the furnace has been brought up to heat, some of them can be turned out, and only enough left burning to maintain the temperature.

The proper temperature gradient (1400 deg. Fahr. in the hot zone) is maintained automatically by three recording controllers connected with motor-operated valves on the gas supply lines. The furnace construction is of brick; 9 in. of fire



(Above) The forming required to produce the old-type Cadillac hub-shell (top group) and the several formings on the new type Cadillac hub-shell and ring (bottom group).



(Right) Machining operations on a new type Cadillac hub-shell on a special Potter & Johnston lathe, which includes 2 boring bars for boring and facing the center hole in the small end, and a slide block carrying a 20-deg. tapering tool with a guide to keep the tapering tool in alignment.

brick with 9 in. of insulation being used in the hot zone, and 4½ in. of each in the other two zones. The whole is encased in steel plates supported with double channel buckstay construction.

The hub mentioned in the first part of this article is made in 2 pieces, a shell and a ring. By the old method of manufacture, the ring was pressed into the shell, but by the new method, the two are welded together. They are pressed out of 3/16 in. steel plate. The operations and machines used in the old method are as follows:

1. Blank cold in 76½ Bliss
2. 1st draw—Bliss press 16B
3. 1st anneal—S.C. annealing furnace
4. 2nd draw—Bliss press 15A
5. 2nd anneal—S.C. furnace
6. 3rd draw—Bliss press 310
7. 3rd anneal—S.C. furnace
8. 4th draw—Bliss press 79½
9. 4th anneal—S.C. furnace
10. 1st form—Bliss press 79½
11. Punch out small end—Bliss press 74½
12. Trim large end to length—ordinary lathe
13. Trim small end to length—ordinary lathe
14. Spread neck of small end—Bliss press 77½B
15. 1st curl (small end)—Bliss press 77½B
16. Press ring into large end of shell—arbor press
17. Size and 2nd curl large and locking ring in place—Bliss press 78½B
18. Pickle and wash.

The hub shell then goes to the machining department.

Operations on the rings are as follows:

1. Blank form—Bliss press 76½B
2. 1st draw—Bliss press 76½
3. 1st anneal—S.C. furnace
4. 2nd draw—Bliss press 76½
5. 2nd anneal—S.C. furnace
6. 3rd draw—Bliss press 78½
7. 1st form—Bliss press 78½
8. 2nd form—Bliss press 79½
9. Punch out center—Bliss press 76⅛
10. Perforate location holes—Bliss press 76½
11. Wash and pickle.

By the new method which was introduced after the shell had been redesigned, the work is reduced very materially. The operations on this shell are as follows:

1. Blank cold—Bliss press 76½
2. 1st draw—Bliss toggle press 16B
3. 1st anneal—S.C. furnace
4. 2nd draw—Bliss toggle press 15A or 16B
5. 2nd anneal—S.C. furnace
6. 3rd draw—Bliss press, 78½, 79½ or 310, 312 (hole punched in 74½)
7. 3rd anneal—S.C. furnace
8. Form—Bliss press 79½ or 312
9. Punch 8 drive lug holes and center hole—Bliss press 76½
10. Trim flange on large end for ring—Bliss press 76½
11. Spread neck of small end—Bliss press 76½ or 78½
12. Wash and pickle

The operations on the ring for this job follow:—

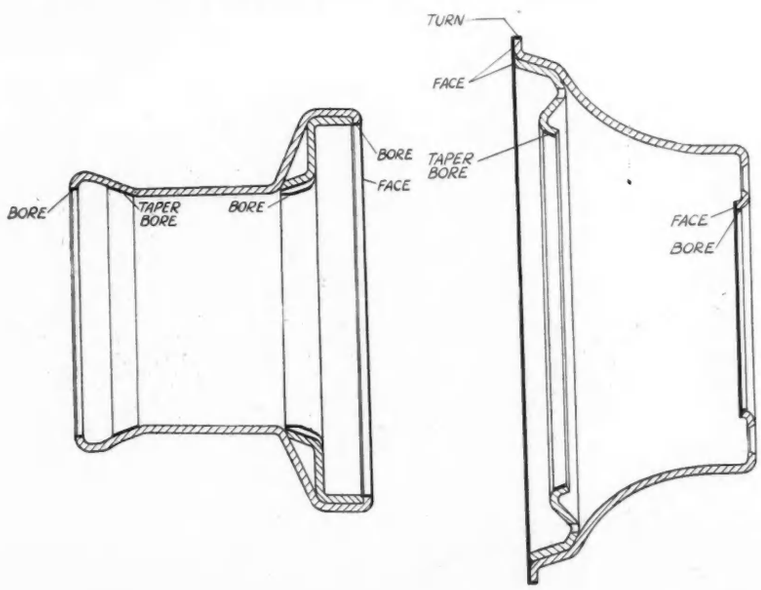
1. Blank cold—Bliss press 76½
2. 1st draw—Bliss press 79½
3. Punch out center—Bliss press 79½ or 312
4. Form—Bliss press 79½ or 312

These parts are loaded into tote boxes and removed to the machine department with lift trucks. The machining operations on the hub shell made by the old method are as follows:

1. Rough bore small end—engine lathe
2. Bore safety flange and chamfer—J.&L. lathe
3. Finish bore small end—J.&L. lathe
4. Drill 78 spoke holes complete in 1 op.—Kingsbury multiple spindle drilling machine, with 6 operating spindles
5. Countersink 52 holes in large end outside—Avery single spindle drill press
6. Countersink 52 holes, large end inside—same
7. Countersink 26 holes in small end inside—ditto
8. Remove burrs wherever necessary—ordinary lathe
9. Rough polish (nickel plate dept.)
10. Finish polish (nickel plate dept.)
11. Press in locating pins.

The machine used on operations No. 4, consists of a horizontal table with six individually motor-driven drilling spindles mounted thereon. The shell is held

(Turn to page 200, please)



(Left) Machining operations on old-type hub-shell outlined

(Right) Machining operations outlined for new-type hub-shell

Wheel *Shimmy Preventive* Devised By Use of *Friction Springs*

Combination of damping power with restoring force needed to return front wheels to normal position after they are deflected by vibration.

A NEW shimmy preventive is described in *Der Motorwagen* by F. Meineke. Theoretical considerations led him to the conclusion that what is required to prevent shimmy is the combination of a damping force with a restoring force which tends to return the front wheels to their normal position after they have been deflected therefrom by a force producing shimmy. The restoring force can be obtained only from a spring, and this leads to the combination of a frictional device and a spring. This combination is represented by the so-called friction spring, of which there exist a large number of different designs. Thus, for instance, railroad cars are equipped with spring-type friction draft gears to cushion the stresses and impacts set up in the starting and stopping of trains.

Fig. 1 shows a drag link, in the rear end of which two friction springs have been incorporated. An essential feature is the stop A for the cones of the friction spring. The cones are pressed against this stop with the initial spring pressure and give a spring force diagram like Fig. 2. In the central position the restoring force must be still sufficient so that the resistances of the steering linkage, which includes primarily the friction in the knuckle pivot bearings, will be overcome. If the stops were eliminated, a spring force diagram like Fig. 3 would result, with which there would be no restoring force whatever for the central position, because the two springs then would neutralize each other's effects. The area of work done is greater than in the case of the arrangement represented by Fig. 2, but this is offset by the great range through which there is no restoring force at all. That would be very dangerous, because after a deflection the wheels would not return to the central position and the car would be diverted from its course.

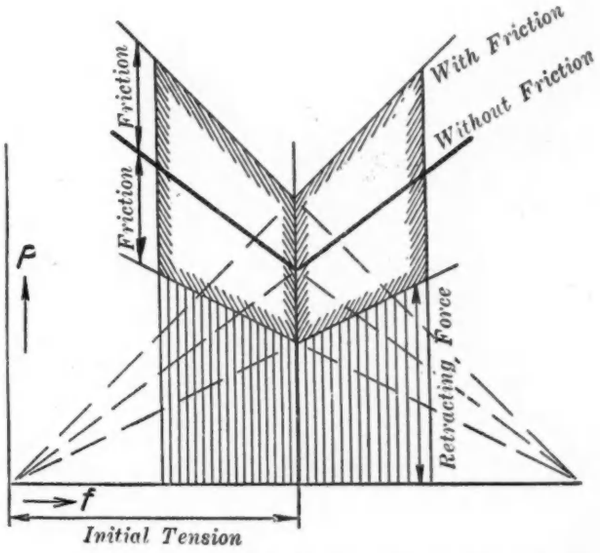


Fig. 2—Spring force diagram with springs put under initial tension by stops

The cone which spreads the segments of the ring apart and against the wall of the tube may be arranged with its small end toward the ball stud, as shown, or toward the spring. In the latter case the pressure on the ball stud is

$$P = P_f \frac{(1 \pm \mu)}{\tan \alpha}$$

where P_f is the spring pressure, μ, the coefficient of friction and α the angle of the cone. With the arrangement shown the friction is greater, because it is not the spring pressure which presses against the cone, but a force increased by the frictional resistance. In this case

$$P = \frac{P_f}{1 - \mu \frac{1 - \mu \tan \alpha}{\tan \alpha - \mu}}$$

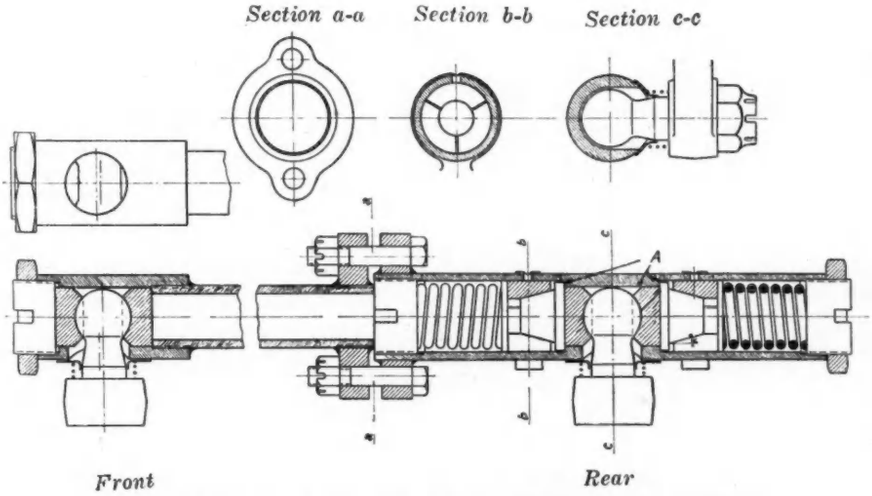


Fig. 1—Steering drag link with friction springs. (This arrangement is particularly suitable for incorporation in cars already in service)

The damping action is controlled by the angle μ. Whereas in this case the friction occurs between the segments and the wall of the drag-link tube, in the design shown in Fig. 4 the friction spring is placed in the steering-gear arm. This has the advantage that no lubrication is required, for experience with railroad coaches has shown that spring leaves may be worked together dry. Damping can be controlled by the width

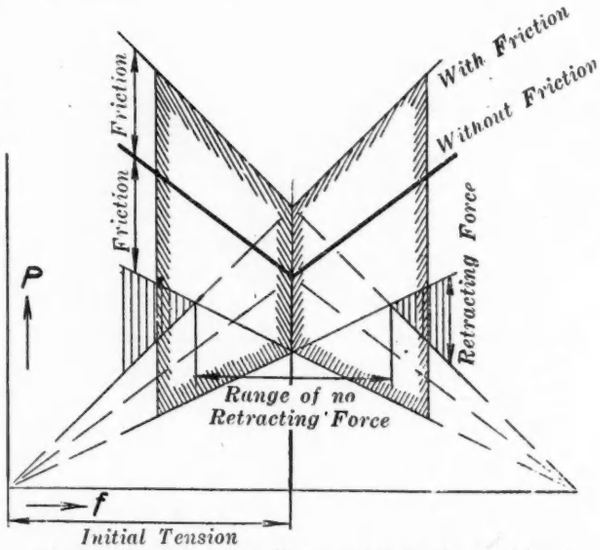


Fig. 3—Spring force diagram for springs without stops. (The outlined areas represent the work done during one vibration)

of the wedge, in which the edge *A* around which the ball stud rocks is moved axially, and also by so locating the spring rings that their joints coincide or are staggered.

Calculation of the springs and the damping required is impossible, because of the lack of theoretical and practical bases. But a fortunate circumstance led to the discovery that a remarkably light spring suffices if the spring has the proper initial tension and damping. The pressure should not be so great that with the vehicle at a standstill the adherence of the tire to the ground will be overcome. If the steering wheel is turned, the wheels will stick to the road and turn only so much as is permitted by their elasticity. If the steering wheel is then released, it returns slowly to its initial position, owing to the damping action.

This accidental setting of the spring had the further beneficial effect that no wheel fight could be observed. These weak springs absorb all shocks and are not capable of turning the steering wheel. According to the author, this results in a quality of steering which has been unknown so far, and imparts a feeling of a high degree of security.

The friction spring not only suppresses the so-called

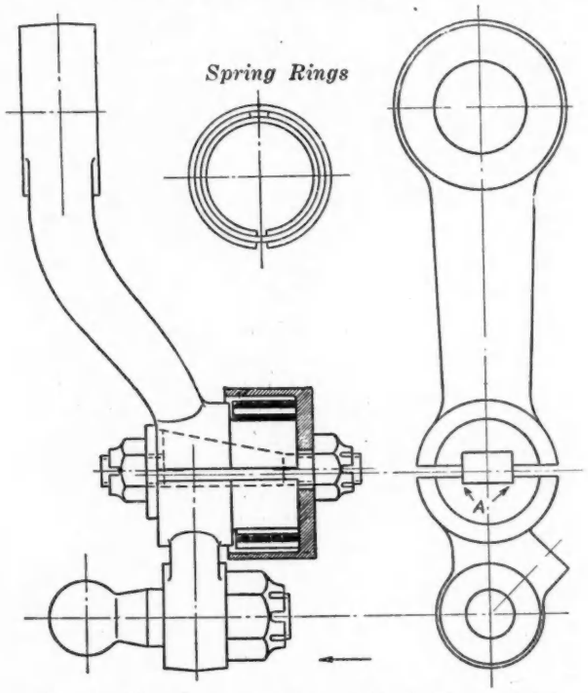


Fig. 4—Steering gear arm with friction spring. (The arm is divided and its parts are held together by the spring rings. The spring pressure is adjusted by means of the wedge)

pseudo shimmy but also true shimmy. In the first place, true shimmy occurs much less frequently, and when it does occur it is usually damped out after a few vibrations have run their course.

Automatic Annealing Furnace Cuts Wire Wheel Production Operations

(Continued from page 198)

in a quick-acting indexing fixture and six spoke holes are drilled at one time. Previously they were drilled on a double-spindle drill press, one hole at a time, and the method just described cut the cost by 80 per cent.

The machine operations on the new type of hub shell follow:

1. Welding ring to shell
2. Face, turn, bore and chamfer both ends—special P. & J. turret lathe
3. Drill 8 drive lug holes—Kingsbury drill press described
4. Counterbore 8 lug holes—Kingsbury drill press described
5. Drill 54 holes complete—Kingsbury drill press described
6. Burr large end of holes outside
7. Burr small end of holes inside
8. Countersink 36 holes in large end
9. Countersink 18 holes in smaller end
10. Polish

The collection of operations under No. 2 in the above list are performed on a Potter & Johnston lathe with a special head and special tools, including two boring bars for boring and facing the center hole in the small end, a slide block carrying a 20 deg. tapering tool which bores the tapered inside ring, a guide to keep the tapering tool in alignment, and a pilot bushing to guide the boring bars. The hub shell is held in specially designed chuck jaws and is machined in three positions of the turret, so that it contacts the three sets of tools one after the other.

In the first position, the outside diameter is rough-turned, the center hole is rough-bored, the outer flange is rough-faced and the center hole is spot-faced for depth. In the second position all these surfaces are finished, and in the third position the 20 deg. taper in the ring is roughed and finished.

Just Among Ourselves

Factory Men Forgot Service As Dealer Meeting Topic

SERVICE was conspicuous by its absence as a topic at the factory dealer meetings and gatherings again this year. It got very strong emphasis from a few manufacturers, but for the most part it got little mention in the merchandising and dealer-help talks made by factory executives.

Service has long been recognized by factory executives as an essential adjunct to permanent selling effort. In 1930, however, it has a far bigger part to play in profitable operation of dealer establishments than ever before. It might not be too much to say that the dealer who sets up to do a real service job and who visualizes service as an opportunity for profit—not as a necessary evil coincident with the selling of automobiles—has a better chance of financial stability than can ever be provided for him by all the changes in factory policy that ever will be made.

* * *

Car Makers are Confident Following Fair January

CAR manufacturers as a whole unquestionably felt more confident about the general business outlook at the end of January than they did at the end of December. Retail sales returns for January showed increases over 1929 in a number of instances. Although the total deliveries for the industry exclusive of Ford are almost certain to have been less than in 1929, the size of the decline will not be nearly so great as most executives feared.

Several important producers, strangely enough, report that sales have been very good in cities, but that buying in the small towns and rural areas has not come up to expectations. This trend, while attributed to bad weather, is directly opposite to what might have been expected on the basis of most economic predictions which have been made recently.

Original equipment parts makers report January to have been relatively slow, but look forward to a good increase in releases during February. Some of them, in fact, feel that the car companies already have held off releases too long in certain instances and won't be surprised if they are asked to work nights before 60 days have passed.

* * *

Competent Sales Training For Retail Men Would Help

THE retail salesman did come in for a lot of attention by factory sales managers in their talks to dealers during show week. It is generally agreed that improvement in the average ability of the retail salesman is one of the chief problems still facing the industry.

Whatever the factories may continue to do in giving impetus to such improvement, it seems to us that competent, constant and active training of retail salesmen by the individual dealer is essential to any marked change in the present situation.

* * *

Emphasis on Maintenance Would Help all Concerned

FACTORIES today are being badgered by their dealers for many policy changes. Basically this badgering develops from a single cause—lack of profits among dealers. The dealer who puts his mind on developing, selling and making money from maintenance will have more profit at the end of the year than the one who regards service *merely* as an adjunct to car sales. And if he has more money at the end of the year, he won't badger the factory so much. It's our guess that any factory could add to its 1930 exhortations to dealers the phrase "Make Money From Maintenance" and find itself definitely the gainer in car sales and local prestige in many areas at the end of the year.

Smaller Profits Expected For First Quarter of Year

PASSENGER car executives for the most part do not seem to be anticipating large profits during the first quarter. It is generally agreed that, with a few exceptions, earnings for the first three months this year will run somewhat behind 1929.

This expectation is based only partly on the outlook so far as actual car sales are concerned, although less volume is expected.

The various policy changes which are being made in regard to dealer relations, it is pointed out, will cost the factories a certain amount of money to put into operation. After those policies have become operative, the increased stability and vigor of the dealer organizations, it is felt, should almost certainly result in greater profits than ever before. Some months, however, will be needed for these effects to be felt.

In the meantime, new production economies are being developed continually and design is being simplified to make manufacturing higher in quality and lower in cost. These factors, some executives believe, will go far to offset all immediate merchandising costs.

Just what the profit statements will show, of course, remains to be seen. Dividends seem entirely safe in practically every instance, although discontinuance of stock dividends may be decided upon in some instances.

* * *

"Ultima Thule" in Committees

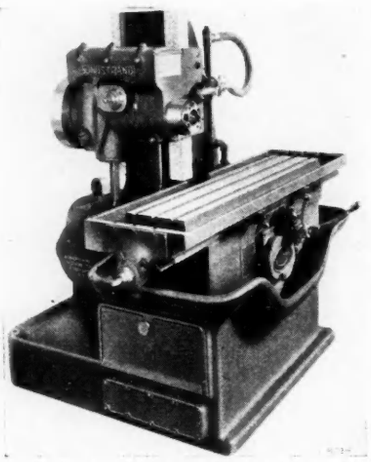
WE'VE been a member of a lot of funny committees in our time. Our entry for the honor of being the queerest is mentioned in the Jan. 3 issue of *British Autocar:*

"The Roads of Remembrance Committee of the Roads Beautifying Association aims at beautifying the countryside with sculpture."—N.G.S.

NEW DEVELOPMENTS—Automotive

Number Three-W Rigidmil

NUMBER THREE-W, a new series Rigidmil, just announced by the Sundstrand Machine Tool Co., Rockford, Ill., is provided with the same ranges of feeds and speeds as the standard Number Three, but has certain added features which increase the wide application of special single and multiple-spindle heads. The new machine is heavier, has a higher column, providing greater flexibility for special heads, and has a compartment for chips, with a drop-door for clean-out in the base of the machine. The saddle is of larger proportions, as is the table, and an increased minimum power feed travel is provided. The feed control and table stops are thoroughly protected from chips and coolant. All feed and speed changes on the Rigidmil are obtained by means of pick-off gears. The spindle speed range is from 17 to 241 r.p.m., and the feed range from 1.9 in. to 2.14 in. per min. Either belt or motor-driven power units may be used, and two sizes of motors are recommended, a 5 hp. and a 7½ hp., 1200 r.p.m., depending upon the work to be milled.



Sundstrand No. 3-W Rigidmil

Micro-Indicator Tube

THROUGH their American agents, the R. Y. Ferner Co., Investment Building, Washington, D. C., the Societe Genevoise d'Instruments de Physique, of Geneva, Switzerland, are offering a new form of their micro-indicator tubes for use with the various types of supports they supply for the accurate checking of parts by comparison with standard gages or gage blocks. This new tube, shown in the illustration, has a fan-shaped dial which gives a range 2½ times that of the cylindrical indicator previously supplied.

Two tolerance indexes, colored red, are adjustably mounted in a slot above the dial within a cover over the dial which can be readily removed for adjustment. With the multiplication of the system adjusted to a 400:1 ratio, two scales are used, one having 60 divisions, each division being about 0.04 in. wide and representing 0.0001 in., so that the range of the scale is 0.006 in.; the other scale has 30 divisions, twice as wide as the above, each representing 0.0002 in. and so giving the same range of 0.006 in. With a multiplication of 120:1 in the system a third scale is used having 40 divisions each of which is 0.06 in. wide and represents 0.0005 in., and so gives a range of 0.02 in. Dials of dull white celluloid with sunken printed division lines of black contribute to easy reading.

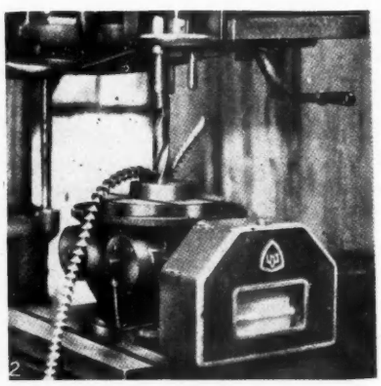
Micro-indicator

The cylindrical part of the micro-indicator has an outside diameter of 30 mm. (1.1811 in.) and a total length, including the space required for the lifting levers, of 2⅞ in., which is reduced to 2¼ in. when the lifting levers are used. The downward pressure of the spring which holds the plunger in contact with the object being measured is 300 gm. (about 10½ oz.).

Drill Testing Machine

TORQUE and thrust measurements in drilling tests are simplified through the use of the Losenhausenwerk portable testing table which is distributed in this country by Alfred Suter, 200 Fifth Ave., New York, N. Y. The accompanying illustration shows the assembly of the instrument and recording device, with a drilling machine under test.

Its low design (12 in. approximately) makes this apparatus adaptable even for smaller models of drilling machines. The vertical drill pressure is transferred to a gage chamber of a special construction while the turning moment is recorded by two power indicators on either side of the housing. These power indicators act upon a recording device provided with two hollow pens, one indicating the drill pressure, the other registering the turning moment. The diagram is recorded on a rolling sheet of paper. Time is simultaneously recorded by a magnetically operated pen.



Portable drill-testing machine

Before entering a test, the test piece is fastened to the table by means of two clamps. The base plate of the apparatus is provided with a water gutter and a cock allowing the discharge of cooling water. Projections provided on either side of the housing afford hand grips, enabling easy transportation and fastening to tables of other drilling machines. The recording instrument of the drilling machine testing table is provided with a clock indicating every fifth second on the diagram. The speed of the registering paper is 2⅜ in. per second.

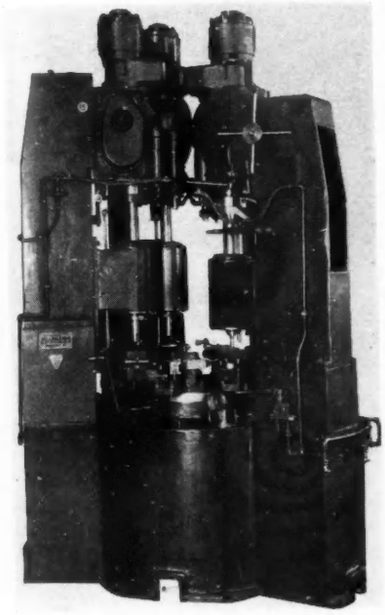
Approximate Capacities, Weights and Dimensions

Drill Pressure Lb.	Torque Lb. Ft.	Weight Net Lb.	Weight Gross Lb.	Dimensions of Sea Packing, In.
5,500	361.50	202	286	25⅝″ × 37½″ × 17¾″
11,000	723	330	616	31½″ × 31½″ × 25⅝″
22,000	1,807.50	616	770	39⅜″ × 39⅜″ × 29⅜″

Parts, Accessories and Production Tools

Millholland Automatic Drill

HOLES in tractor magneto frames are bored automatically on this four-spindle drilling unit built up from their standard drilling heads by the Millholland Sales & Engineering Co., Indianapolis, Ind. Special attention has been paid to the fixtures so that they clamp with one motion and can be unloaded and loaded well within the cycle time of machining.

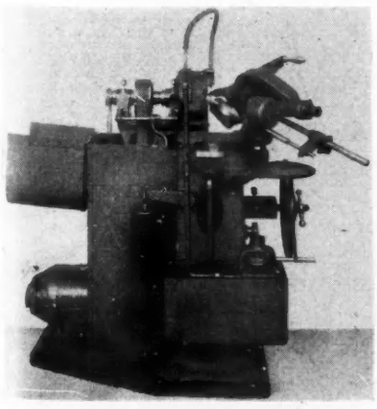


Millholland No. 4 automatic drilling unit

The machine is so arranged that the feed which is engaged on all units simultaneously by means of an air valve, becomes inoperative if the lock bolt in the indexing table is not seated in the bushing. In addition to the alignment secured by the lock bolt in the indexing table register, pins come down at each work station and register in hardened bushings in the fixtures. The air return cylinders which withdraw the spindles at the completion of the feeding stroke operate against the pressure of the air line, using no air, and have adjustable piston heads, together with bleeder chambers, which absorb all shock as the spindles return. The operating cycle on this machine in 16½ seconds for machining and 3½ seconds for indexing.

Drill Grinding Machine

TWO-LIP drills 5/16 in.-3 in. diameter, and three-lip and four-lip drills ¾ in.-2 9/16 in. diameter can be accurately ground on the 2A drill grinder just placed on the market by William Sellers & Co., Inc., Philadelphia, Pa. It both rough and finish grinds the drill. The rough grinding is done by taking a succession of heavy "slicing" cuts, holding the chuck stationary and passing the wheel across a narrow portion of the lip; turning the chuck slightly to take each successive "slicing" cut; in this way quickly removing the stock from the whole face of the lip. Then, by oscillating the chuck and passing the wheel lightly over the cutting edge, a smooth and accurate finish is obtained.



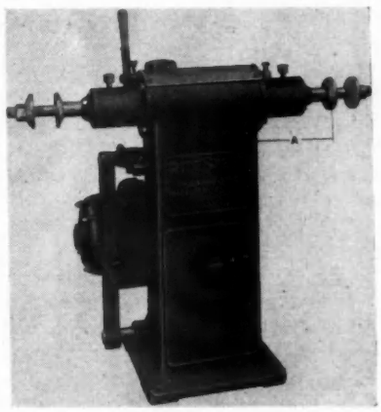
Sellers No. 2A drill grinder

The grinding head is adjustable to suit any angle of drill point from 90 to 130 deg. included angle. The chuck holds the drill between hardened steel jaws on two edges of the flutes near the cutting end, and at the shank end by a back center adjustable for the length of drill; the entire length of drill from end to end being clear of any contact with the chuck. This method permits the chucking of drills with any shape of shank, and assures the point being properly ground.

The motor-driven machine is driven by a 2 hp. constant speed motor, A.C. or D.C., about 1750 r.p.m. Net weight of the machine with the motor is about 1350 lb. Floor space required, 5 ft. 4 in. by 3 ft. 4 in.; height overall, 5 ft. The belt-driven machine is provided with an overhead countershaft. The speed of the countershaft is 734 r.p.m.; fast and loose pulleys 8 in. in diameter. The net weight of the belt-driven machine is 980 lb.

Polishing and Buffing Lathe

WITH the introduction of the Type "C," another "Rite-Speed" electric polishing and buffing lathe has been added to the line of the Hammond Machinery Builders, Inc., Kalamazoo, Mich. One of the features of this machine is the availability of variable speeds by means of the multi-V belt drive which is built-in. Another feature is the ease with which belts can be changed, for by removing the four large cap screws on each side of the spindle, the entire spindle can be removed from the pedestal without disturbing the bearing mounting, or subassembly parts. The motor adjustment screw is then loosened, thereby taking the tension off of the motor pulley, thus permitting the belt to slip off of the spindle. The combination switch and brake is a new feature on all Rite-Speed polishing machines. With this design, the forward movement of the lever breaks the current connection and applies the brake. The brake is released and the motor started by reversing this operation. As on their other machines, the motor is completely inclosed and fitted with an air cleaner for protection against dirt and dust.



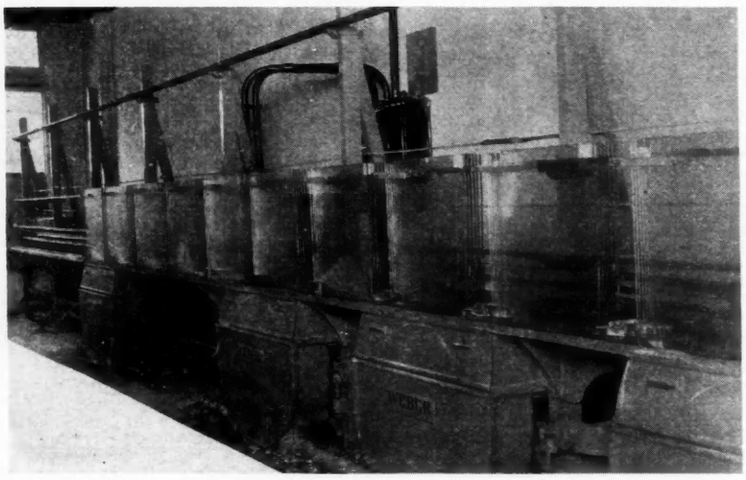
Type C, Rite-Speed polishing and buffing lathe

Weber Patent Glass Edger

WEBER Junior and Weber Senior, with double capacity, are two patent glass-edging machines recently placed on the market by the Weber Showcase

& Fixture Co., Inc., Los Angeles, Cal. These machines round and polish glass edges, entirely eliminating manual labor. The glass plates travel over five grinding and polishing wheels of graduated hardness. The last in line, being soft, imparts a high polish to the glass edge. The bottom half of the wheel is submerged in a solution which provides for a minimum of wheel wear, and keeps the glass cool at the point of contact.

The machine is operated by electric power conveyors, carrying the plate glass over the grinders and polishers and when the glass has reached the end, one edge is completely finished, the operation being repeated until all four sides are finished. Six plates are polished at one time. Replacing the glass is the only labor required, since all other operations are automatic. Among the advantages claimed for this new method are the total absence of breakages; that glass is never scratched from handling or abrasives, and the edges are always uniformly round and highly polished; moreover, it saves floor space and does the work at a fraction of the cost of the old-style hand polishing.



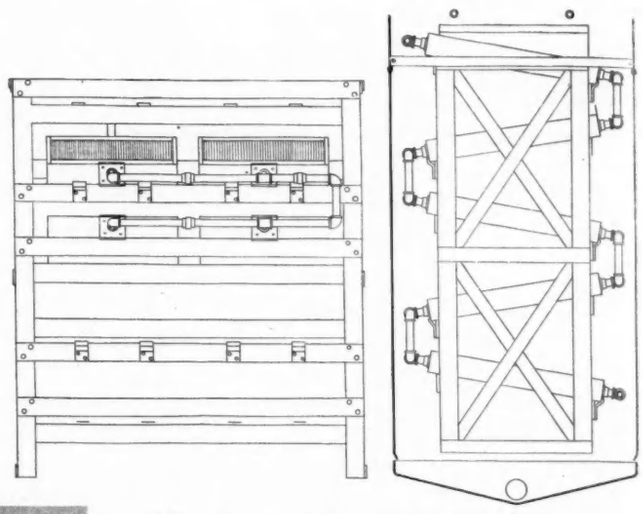
Weber glass edger in production line position

Coolers for Quenching Oil

IN order that quenching baths may be uniformly effective, they must be maintained at a substantially constant temperature. If a quenching tank is used to anywhere near capacity, the oil in it has to absorb a large amount of heat, since the steel parts are lowered or dumped into it while red hot. Oil has only about half the heat capacity as water, and the oil temperature rises quickly, hence energetic cooling means must be provided.

In the past it has been customary to place cooling pipes or coils at the bottom of the tank, through which cold water was circulated, but it has been found to be a more practical plan to let the oil flow or trickle over automobile-type radiators through which cold water is flowing. The Badger Manufacturing Co. of Milwaukee, manufacturer of automobile bumpers, employs a quenching tank holding 50 bbl. of oil and cools this oil with a battery of 20 coolers of a type manufactured by the Young Radiator Co. of Racine, Wis. There is a similar installation at the plant of the Harvey Spring & Forging Co., Racine. A five-bank two-row type of cooler for quenching installations is illustrated herewith.

In the installation referred to, about a ton of steel is passed through the quenching tank per hour, being discharged into it while red-hot, but the temperature of the oil is kept at 135 deg. Fahr. The oil is pumped from the tank into the cooling unit located in the open air, being discharged into a perforated tray at the top and dripping from one of the five superimposed radiators to the next, finally collecting in a drip pan at the bottom, from which it returns to the quenching tank by gravity. Cold water enters the series of five radiators at the bottom and leaves the top, being discharged into the sewer. The temperature of the oil in the quenching tank can be controlled within moderate limits by varying the rate of flow of the cooling water.

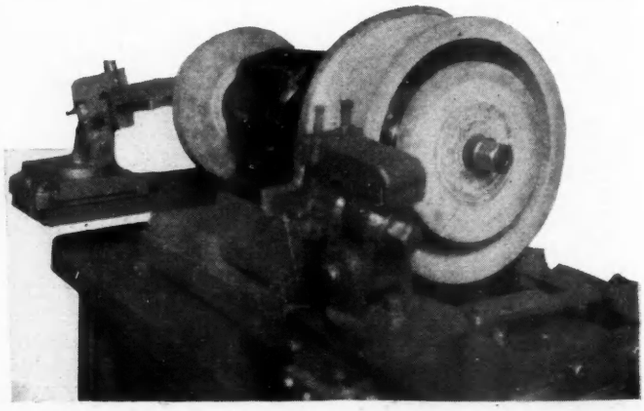


Oil cooler for heat-treating installations

Grinding and Lapping Unit

GRINDING and lapping cemented tungsten-carbide tools is said to be facilitated by the new multiple wheel machine recently announced by the Advance Diamond Tool Co., Detroit, Mich.

One end of this machine carries two rim wheels. One is a 12-in. roughing wheel of 60 "I" grit. The other is an 8-in. rim wheel of 120 "I" grit. On the opposite end of the machine is a diamond lapping disk. Both ends of this machine are provided with a slide across the face of the wheel. Another slide, which moves toward the face of the wheel, has a special universal vise which can be adjusted for three angles. After the roughing operations on a tool are completed, it is moved toward the

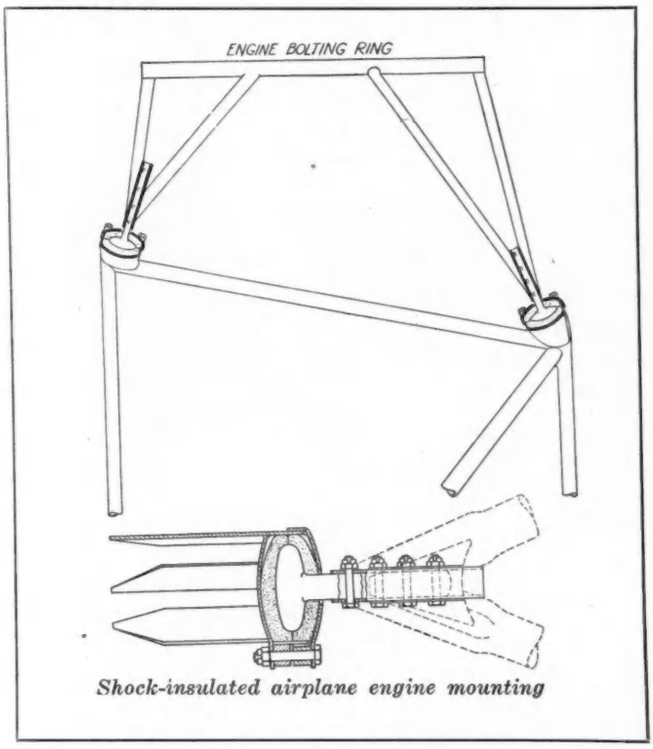


Advance diamond multiple grinding and lapping machine

finishing wheel, which is of a finer grit, where the finish grind is performed. Should diamond lapping be required on the same tool, the universal vise with the tool mounted thereon is removed from the end of the machine where the emery wheels are mounted and transferred to the opposite end against the lapping disk. This machine is provided with a rheostat for varying the motor speed to suit the requirement of accuracy.

Aircraft Engine Insulator

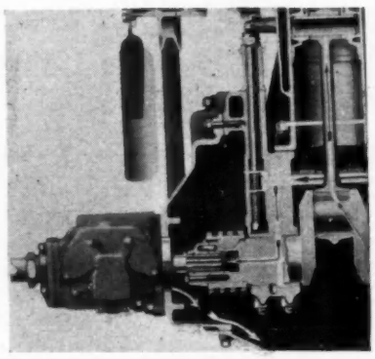
A NEW use for rubber shock insulators has been found in connection with the mounting of aircraft engines of the fixed radial type, which are generally located forward of the fuselage instead of within it. The standard method of mounting of such engines is by means of four tubular members from the engine mounting flange to the four front corners of the fuselage. Each of these members is of wishbone type. In the mounting method which has been worked out by the Rubber Shock Insulator Corp. of Bridgeport, Conn., and which is illustrated herewith, each of these supporting members is provided with a button-shaped enlargement at the crotch, which is held between rubber cups in a socket secured to the corner of the fuselage. The object of this construction is to prevent the transmission of engine vibration to the fuselage.



Shock-insulated airplane engine mounting

Crankshaft-Driven Air Compressor

THE Westinghouse Air Brake Co. now furnishes a horizontal-cylinder air compressor which is directly driven from the engine crankshaft. As illustrated, this compressor is mounted at the front end of the engine, with its crankshaft directly connected to the engine crankshaft through a splined coupling. The compressor, therefore, operates at engine speed. It is rated at 6 cu. ft. displacement per minute at 1200 r.p.m. and for higher speeds the displacement is increased proportionately.

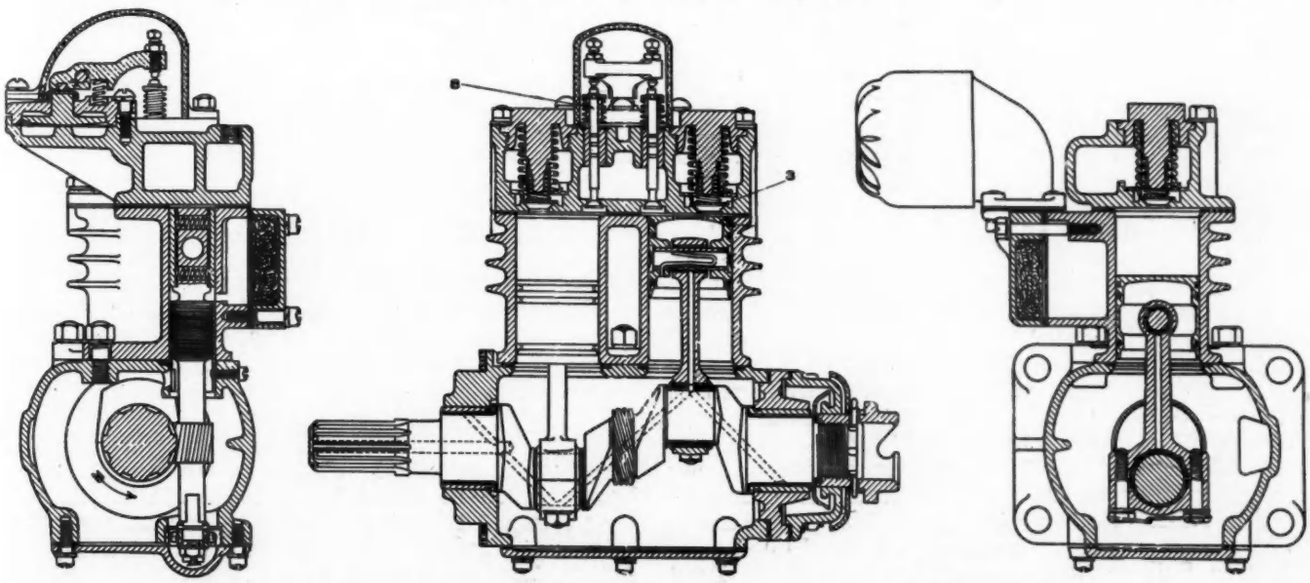


Showing compressor mounted at front end of bus engine

Pressure control is effected by means of a governor in conjunction with the unloading head on the compressor. At a predetermined maximum setting, the unloading valves 8 are unseated, allowing the air to be "rubbered" between cylinders without unseating the discharge valve 3.

With the compressor thus built as a unit part of the powerplant, it is assured of favorable operating conditions. Its position is permanent and no adjustments are required after the original installation. It can be serviced at the regular engine intervals and its position near the fan provides excellent radiation, assuring clean, dry air.

The compressor is automatically lubricated from the engine oiling system.



Westinghouse horizontal-cylinder air compressor for crankshaft drive

Beginning Next Week

THE rise of the automobile business to its place as one of the major industries of the country during the past 35 years has been the subject of such eager participation by contributors to its development, both old and young, that many of the unusual details and events of the industry's history have been either passed over by contemporary engineers or forgotten by the older executives.

It is the pleasure of *Automotive Industries* to announce that a series of graphic pen-pictures has been prepared by Pete Keenan, an artist of international reputation, for a permanent record of the odd and unusual in this great business, to be published each week for an indefinite period.

Mr. Keenan is one of the most prominent cartoonists of the country today. His more recent work will be remembered in the syndicated sketches made at the World's Series baseball games in Philadelphia and Chicago last October, and distributed throughout the country by the International News Syndicate. He draws for the Associated Newspapers of New York, the Christy Wells Syndicate of New York, and the Philadelphia *Evening Bulletin*, while many who attended the Road Show, under the auspices of the American Roadbuilders' Association in Atlantic City last month, will remember his daily cartoon in the association's bulletin.

But behind Mr. Keenan's present ability lies a background of artistic endeavor and accomplishment that gives his portrayal of automotive oddities an added flavor. He was started in Belfast, Ireland, toward a career in medicine, but found painting more to his liking, and left his native city for Glasgow, and from there went to the Canary Islands. His subsequent travels took him to Cape Town, and Durban, in Africa, until he arrived in Sydney, Australia, as chief cartoonist on the *Sydney Bulletin*.

He joined the British Army when the World War broke out, and was wounded in 1916 on the Somme and promoted to lieutenant. In the third battle of Ypres he was again wounded and received the military cross for bravery.

After some months in the hospital, he started afresh by resuming his study of art at the University of London, where he gained the Slade Certificate. He was later awarded the silver medal at the Beaux Arts in Paris, and was made a member of the Royal College of Artists, London, and a member of the Ulster Art Club of Ireland.

First with the News

Reliable, Accurate

News of the Industry

PAGE 207 VOLUME 62 *Philadelphia, Saturday, February 8, 1930* NUMBER 6

Motor Vehicle Duties to Be Reinstated

Protests From Coal Interests Force Return of Provisions

WASHINGTON, Feb. 7—The countervailing provisions applying to motor vehicles, coal and other products, which were struck from the tariff bill in the Senate will be reinstated, it has been announced by Senator Smoot, chairman of the Committee on Finance.

Acting upon a suggestion from Secretary of State Stimson, these provisions, which were carried in the House measure, were eliminated through amendments offered by Senator Smoot, despite the fact that the latter said that he thought the provisions were a "good thing." The State Department pointed out that the countervailing duties were a source of friction with foreign governments and it was for that reason that Senator Smoot offered amendments striking them out. But when the one applying to coal was eliminated protests of a vigorous character came from the coal industry, and were strongly supported by a number of Senators of both parties who served notice that they would ask for reinstatement of the provisions. The automotive industries had made no protest against elimination of the countervailing duty as it applied to their products, but it is understood that, as a matter of principle, they favor retention of the provision, while at the same time they took the unusual position of asking for decreased duty, which was provided in the Senate bill, the impost being cut to 10 per cent from 25 per cent. The automotive interests took the view that it was desirable to cut down the tariff rate if export were to be increased.

Yet it was upon the heels of this move by the automotive industries that the French and German governments announced proposed tariff legislation designed to greatly increase duties on motor vehicles, the brunt of which would fall upon American cars. Protests were made by 19 automobile manufacturers to Senators, and other government sources with the result that the proposed foreign tariffs are being held in abeyance so as to give American interests an opportunity to be heard. Senator Walsh, Democrat, of Montana, through the Democratic National Committee, said that the automobile manufacturers had protested to President Hoover with the result that the administration had been put in an embarrassing position.

Senator Walsh took the position that both Ambassador Edge at Paris and Ambassador Sackett at Berlin had given sanction to the duties against which French and German manufacturers generally have protested.

British Raise Funds for Huge Air Merger

LONDON, Feb. 2—A fund of $5,000,000 has been created by a group of financiers, it was learned tonight, with the ultimate object of building up an aircraft organization on the lines of the General Motors Corp. Sir Henry Segrave, holder of the automobile speed record, has been appointed technical adviser and has been visiting the Continent to study the problems facing the enterprise.

Studebaker Prices Higher

SOUTH BEND, IND., Feb. 3—The Studebaker Corp. has advised all distributors and dealers that, effective immediately, prices on the Studebaker line are advanced to a higher range. With the exception of the Commander, all other models, including the Erskine, President and Dictator, are now priced from $10 to $100 above the old list. The principal revisions are made in the closed bodies, the touring cars and roadsters holding to the price fixed before the New York Show.

The complete list of new prices probably will be in dealers' hands by the end of this week.

Ford Output 98,529

DETROIT, Feb. 6—World production of Ford cars and trucks in January was 98,529, the Ford Motor Co. has announced. Of this number, 46,784 were produced in the last ten days of the month, as compared with 22,066 in the first ten days. The February daily production schedule is 7000 cars.

Sales reports from dealers indicate a constantly increasing demand, reflecting a general improvement in business conditions.

Willys Revises Car Production Estimate

Believes Profits Will Be as Large as Last Year

WASHINGTON, Feb. 5—A good year for the automobile industry, with a production of 4,500,000 and possibly 5,000,000 vehicles, was predicted by John N. Willys, automobile manufacturer, during a visit to President Hoover today.

"I have revised my estimate of six weeks ago," Mr. Willys said to inquiries. "Then I estimated the total output at 4,000,000 cars. Now I believe the output will be 4,500,000 and possibly 5,000,000, which would be 500,000 or 600,000 less than the 1929 output. The automobile business is picking up right along. I believe there has been so much overhead saved that profits in the industry will be as large this year as last."

G.M. 1929 Earnings

NEW YORK, Feb. 6—The General Motors Corp. earned $248,282,268 during the year ended Dec. 31, 1929, according to a preliminary statement of earnings issued by Alfred P. Sloan, Jr., president, at a directors' meeting today. This includes equity in the undivided profits, subsidiaries and affiliated companies not consolidated. This compares with $276,468,108 for the year 1928. After preferred dividends there remains $238,803,587, or $5.49 per share on the common stock as compared with $6.14 per share for 1928, calculated on a comparable basis.

Directors today declared the regular quarterly dividend of 75 cents a share on common stock, payable March 12 to stockholders of record Feb. 15, and the regular quarterly dividend on senior securities payable May 1 to stockholders of record April 7.

Record Meeting for Penna. S.A.E.

PHILADELPHIA, Feb. 6—Reservations for one of the largest meetings ever held by the Pennsylvania Section, S.A.E., have been received by E. B. Neal, secretary, who is in charge of the body finishing session here on Feb. 12. Speakers will be Frank P. Spruance, American Chemical Paint Co., and George F. Farnsworth, director, Detroit laboratories, E. G. Budd Mfg. Co.

Newspapers to Censor "Dealer" Advertising

NEW YORK, Feb. 5—The New York City Classified Advertising Managers Association has adopted regulations governing the acceptance of advertising placed by automobile "dealers," who maintain no offices and are not in actual possession of cars, which they offer for sale at lower than market prices. The regulations grew out of protests by legitimate dealers, whose investments were threatened by the so-called "bootleggers" bargain offers.

The code, as suggested by the National Association and adopted by the New York managers, is as follows:

1. The advertiser must have obtained the automobile advertised in a legitimate manner.
2. He must be in actual possession of the cars, so as to permit the prospective buyer's inspection.
3. The advertisement must state the number of the car, the make, the year model, the price and percentage of discount.

It has been pointed out to the dealers, that, while the newspapers are willing to help in the elimination of unfair and unethical business practice, the newspapers cannot be expected to refuse legitimate advertising in order to maintain market prices.

January Car Shipments

Buick Motor Co. shipped 7299 Buick and Marquette cars in January, against 6242 in December and 13,008 in January, 1929. Increased schedules are planned for February.

Hupp Motor Car Corp. shipped 2255 cars in January. Export shipments were 263 cars and 60 cars were shipped to Canada. January shipments last year totaled 3687.

Reo Motor Car Co. shipped 2038 cars and trucks in January, compared with 1149 in December and 2350 in January, 1929. Schedule for February calls for approximately 3000 cars.

Studebaker Corp. sales in January showed a 72% increase over December, 1929. Total domestic and foreign shipments were within 3% of January, last year. Shipments to domestic dealers exceeded January, 1929, and retail deliveries in New York City, following the auto show, were greater than for any January in its history, it was stated.

Olds Motor Works, division of General Motors, shipped 5567 cars in January, compared with 7460 in January, 1929. February schedule calls for output of 9000 cars. Current production is at the rate of 400 cars a day.

Reports from Oldsmobile-Viking dealers throughout the country for the first 10 days in January show that they have sold at retail and delivered to buyers more automobiles during that period than during the same 10 days in January, 1929.

Pierce-Arrow shipments of automobiles for month of January greatly exceeded all previous records of the company for that month, according to A. J. Chanter, first vice-president and general manager.

Ford Motor Co. has increased production to 6200 cars and trucks daily from 5500. The new schedule provides for full time employment of five days a week for 93,600 workmen, or 90% of force. During the past week 68,000 men were on full time and 36,000 on part time.

Chrysler Motors reports an increase of 50 per cent in shipments of passenger cars, buses and trucks over December, with orders calling for further increase in February production. Dodge Brothers passenger cars shipped in January totaled 8790, Chrysler Imperial, 77 and 66, totaled 2242, Plymouth 1594. Dodge buses and motor coaches shipped numbered 1489 and Fargo commercial vehicles 313.

De Soto Motor Corp. production for January this year was 20 per cent higher than for January 1929. Following the automobile shows at which new models were presented, orders were received from New York for 40 carloads, Philadelphia 35 carloads, Los Angeles 48 carloads, and San Francisco over 46 carloads.

Graham-Paige production in January totaled 2976 cars, of which 1120 were built in the final week, during which daily production began to exceed 200 regularly.

Motor Stocks Higher

NEW YORK, Feb. 3—Seven representative motor stocks increased in value on the Exchange during January by 5.8 per cent, advancing from a valuation of $2,443,007 as of Dec. 31 to $2,585,234 as of Jan. 31, according to a monthly survey just completed by Frazier, Jelke & Co., New York bankers.

This represents a part of a general advance in 100 representative common stocks of 6.3 per cent for the manufacturing members, being surpassed by chemicals, which gained 9.1 per cent, utilities 8.7 per cent, industrials 7.9 per cent, steels 7.3 per cent, amusements 7.2 per cent and foods 6.4 per cent.

Groups gaining less than the motor group include electrical manufacturing at 18.1 per cent, rails 5.1 per cent, mines 4.4 per cent, merchandising 2½ per cent and railroad equipment 1.7 per cent.

The 100 representative stocks chosen by this house for its index were selling at the end of January higher than at any time since early November.

Registration Increases

DETROIT, Feb. 3—The total new passenger car registrations for Wayne County last month showed a gain of 808 over the total of 3084 for December, 1929, and a decrease of 1421 from the total of 5313 in January, 1929. In the new car registrations last month, Ford was first with 2201, Chevrolet ranked second with a total of 521, Essex was third with 180, Oldsmobile was fourth with 120 and Hudson came fifth with 106.

The total registrations of commercial cars and buses last month was 416 compared with 600 in December and with 614 in January, 1929. Ford registrations last month were 227, or more than 54 per cent. Chevrolet ranked second last month with registrations of 71 commercial vehicles. Out of a total of 10,141 commercial cars and buses for the year of 1929, Ford registered 5602 in this county or more than 55 per cent.

Business in Brief

Written by the Guaranty Trust Co., New York, exclusively for AUTOMOTIVE INDUSTRIES.

NEW YORK, Feb. 5—Unfavorable weather in some sections of the country last week continued to hamper retail trade. However, wholesale trade, which had been dull for several preceding weeks, showed some increase. Employment increased, undoubtedly reflecting some revival in industry.

CONSTRUCTION CONTRACTS

Average daily construction contracts awarded in the period from Jan. 1 through Jan. 24 in 37 Eastern states amounted to $13,349,000, as against $12,168,000 for December and $15,767,900 for January, 1929, according to the F. W. Dodge Corporation.

CRUDE OIL OUTPUT

Average daily crude oil production for the week ended Jan. 25 amounted to 2,615,600 bbl., as against 2,661,650 bbl. for the preceding week and 2,663,100 bbl. a year ago.

FREIGHT LOADINGS

Railway freight loadings for the week ended Jan. 18 totaled 847,353 cars, which marks a decrease of 84,508 cars below those a year ago and 37,330 cars below those two years ago. The decline during the week ended Jan. 18 was due in part to the severe weather conditions in several sections of the country.

FISHER'S INDEX

Professor Fisher's index of wholesale commodity prices for the week ended Feb. 1 stood at 93.3, as against 93.7 the week before and 93.2 two weeks before.

STOCK MARKET

The stock market last week showed a continued rising tendency. However, most advances were confined to specialty issues. The volume of trading increased; and, all in all, the dealings were carried on in an optimistic tone. Despite some reaction toward the end of the week, prices generally showed net gains for the week. Call money ranged from 4 to 4½ per cent.

BROKERS' LOANS

Brokers' loans in New York City for the week ended Jan. 29 increased $4,000,000, bringing the total up to $3,345,000,000, as against $5,559,000,000 a year ago.

RESERVE BANK STATEMENT

The consolidated statement of the Federal Reserve banks for the week ended Jan. 29 showed decreases of $26,300,000 in holdings of discounted bills, of $39,900,000 in holdings of bils bought in the open market, and of $51,900,000 in member bank reserve deposits. There was only a slight change in holdings of Government securities. The reserve ratio on Jan. 29 was 78.3 per cent, as against 76.3 per cent a week earlier and 75.4 per cent two weeks earlier.

Steel Uptrend Evident as Orders Increase

NEW YORK, Feb. 6—Automotive consumers continue to buy steel as they need it. In spite of the resulting paucity of forward committments, finishing mills were able to increase their rate of operations this week, the number of individual orders as well as tonnages involved being both on the uptrend.

Newspaper estimates of the rate of steel mill operations are frequently misleading because they set up comparisons of capacity of a year ago with that now available, which has been considerably enhanced. Moreover, some lines of finished steel present a picture entirely out of line with theoretical ingot output estimates. So, for instance, while this week's activity in the Mahoning Valley mills is reported at better than 75 per cent of capacity, one steel market authority reports cold-rolled strip mills at not being able to employ more than 35 per cent of their capacity. This figure is probably somewhat too low. Certain it is that demand for hot-rolled strip steel is running far ahead of that for the cold-rolled product. In this state of affairs keen competition between continuous sheet mills and makers of cold-rolled strip is not the least important factor.

Much interest is shown in the trade in what the effect on the market will be of production of full-finished automobile sheets, at Detroit's front-door, in one of the most efficiently equipped mills ever constructed, and initial operation of which is scheduled for a week from Monday.

Sheet bars, billets and slabs continue to be nominally quoted at $33, but non-integrated rollers, especially those of strip-steel, are continuing efforts to obtain further price concessions.

Pig Iron—Automotive foundries are melting iron at a slightly higher rate than they did during the last two weeks of January, and are calling for shipments against contracts at an encouraging rate. The general tendency in the market, however, is to make more bites of a cherry than formerly, and to contract for small lots more frequently rather than to cover an entire quarter's needs at one time. In the Detroit market, No. 2 foundry and malleable continue to be quoted at $19.50 @ $20, furnace. The Valley market is also unchanged.

Aluminum—Routine conditions prevail. Automotive buying is in small lots, but in the aggregate seems to be on the increase. Secondary metal continues easy, due to heavy supplies of scrap. The market for virgin metal remains unchanged.

Copper—Mine production has been curtailed to the extent of approximately 25 per cent, the cut at some smelters being as high as 40 per cent. Demand is reported to be running at about 75 to 80 per cent of the 1929 average. The leading producer-fabricator has announced a reduction of 1¼ cents in the allowance on yellow brass turnings returned by customers.

To Build Plant Addition

DAYTON, OHIO, Feb. 3—Work has been started on the construction of a new plant for the Ohio Heating Treating Company. The structure will be one-story, with 5000 square feet of floor space. It is expected that the building will be ready for occupancy in the late spring.

According to Harry Turner, secretary and treasurer, the new plant will have the latest type automatic gas-fired furnaces throughout.

Frederick J. Storm

DETROIT, Feb. 3—Frederick J. Storm, aged 42 years, vice-president and general manager of the Sterling Motor Truck Co. of Michigan, which is the local factory branch of the Milwaukee Manufacturing Company, died yesterday in Harper Hospital, here, following a brief illness. Mr. Storm assumed his post with Sterling on Oct. 1, 1929, after having been manager of the Detroit factory branch of the Federal Motor Truck Co.

Chilean Trade Portrayed at Overseas Club Meeting

NEW YORK, Feb. 4—The Overseas Automotive Club held its monthly luncheon meeting today aboard the S. S. Aconcagua of the Chilean Line as guests of Luis E. Feliu Hurtado, consul general for Chile. Mr. Hurtado spoke briefly on Chile accompanying his talk with two reels of motion pictures depicting the industrial life of his native country.

Allen A. Bellinger, Central American representative of Black & Decker Mfg. Co., gave a brief talk on the current economic situation in Mexico, from which country he has just recently returned. Mexico, he pointed out, is one of the richest countries in natural resources but stands in need of foreign capital for development of these resources.

Financial Notes

Miller Rubber Co. and subsidiaries report for 11 months ended Nov. 30, 1929, net loss of $819,177 after taxes and charges, but before inventory adjustments.

Chicago Pneumatic Tool Co. and subsidiaries for year ended Dec. 31, 1929, show net profit of $1,582,161 after interest, depreciation, Federal taxes, etc., equivalent after dividends on $3.50 preference stock, to $4.63 a share on 199,469 no-par shares of common stock. For year 1928, net profit was $1,272,104 or $13.53 a share on 94,000 shares of capital stock then outstanding.

Borg-Warner Corp. net income for year ended Dec. 31, 1929, approximated $7,650,000 after depreciation, taxes, etc., according to C. S. Davis, president, comparing with $4,610,831 in 1928. He said increased shipping specifications now being received by the corporation's divisions indicated that there was a distinct revival taking place in the automobile industry.

Detroit Steel Products Co. reported for year ended Dec. 31, 1929, net profit of $1,023,087 after all charges and taxes, equivalent to $5.12 on 199,752 shares no-par common stock outstanding. This compares with net profit of $902,465, equal, after preferred dividends, to $5.11 a share on 151,296 shares in 1928. At the annual meeting of the company directors and officers were re-elected.

With the payment of a dividend of 50 cents a share on its common stock, April 1 to record March 20, the company begins its new arrangement of paying 50 cents each quarter. Heretofore dividends have been paid eight times annually. An extra dividend of 40 cents was paid Jan. 2.

Peerless Motor Car Co. reports net profit for the quarter ended Dec. 31, 1929, of $52,013 after all charges, as compared with a loss during the preceding quarter of $2,003,001 and with a loss during the December quarter of 1928 of $339,667.

Stewart-Warner Corp. for year ended Dec. 31, 1929, shows net profit of $6,838,938 after charges and Federal taxes, equivalent to $5.37 a share (par $10) on 1,273,449 shares of stock. This compares with net profit in 1928 of $7,752,531 or $6.09 a share, computed on the same number of shares.

Allis-Chalmers Mfg. Co., according to a preliminary report, shows net profit for the year 1929 of $4,330,888 after all charges. This is equivalent to $3.81 a share and compares with $2,933,909, or $2.82 a share, for the previous year.

Mullins Mfg. Co. reports net income for 1929 of $476,965 after all charges. This is equivalent after preferred dividends to $2.67 a share on common stock and compares with $728,531, or $6.42 a share, for 1928.

Studebaker Corp. of America has declared regular quarterly cash dividend of $1.25 on common and $1.75 on preferred, both payable March 1 to stockholders of record Feb. 10. The usual one per cent stock dividend has been discontinued for the present year.

Commercial Investment Trust Corp. reports volume of bills and accounts purchased during 1929 of $489,544,018, an increase of 73 per cent over the preceding year. Consolidated net profits available for dividends amounted to $9,132,610, a gain of $3,854,342 over 1928. Profits available for dividends on common stock after preferred were $7,844,095, or $4.47 a share, compared with payments last year on the same basis of $3.88 a share.

Edward G. Budd Manufacturing Co. for year ended Dec. 31, 1929, shows net profit of $1,533,881 after depreciation, interest, etc., equivalent, after 7% preferred dividend requirements, to 98 cents a share on 1,031,352 no-par shares of common stock. Including extraordinary income of $773,261 total net profit for the year amounted to $2,307,142, equal to $1.73 a share on common. In previous year company reported net income of $1,014,731, or $1.27 a share, on 343,784 common shares then outstanding.

Marmon Motor Car Co. declared a quarterly dividend of 50 cents on common stock, placing stock on $2 annual basis, against previous annual rate of $4. Dividend is payable March 1 to stock of record Feb. 18.

Timken Detroit Axle Co. declared regular quarterly dividend of $1.75 on preferred, payable March 1 to stock of record Feb. 20.

Men of the Industry and What They Are Doing

Graham-Paige Appoints Francis Branch Head

William A. Francis, until recently a Ford sales executive in New York and New England, has joined the Graham-Paige Motors Corp. sales department as manager of branches with offices at the factory in Detroit. He had served as Boston branch manager for the entire territory of New England including Connecticut. In 1929 he returned to New York as manager of the Ford branch, the largest of all Ford assembly plants outside of Detroit.

Barker With Fairchild

Col. W. G. Barker, Canada's war ace, who destroyed 50 enemy airplanes in the great war, has been appointed vice-president and managing director of the Fairchild Aircraft company of Montreal. Col. Barker, who is regarded as the Lindbergh of Canada, has been devoting himself to the growing of tobacco in Ontario since 1925.

Roller-Smith Changes

The Roller-Smith Co. announces three changes in its sales organization this week. M. W. Seymour, formerly of the company's office staff in Bethlehem, Pa., has been made a sales engineer in New York. H. D. Stier, Atlanta, has been made representative in the states of Alabama, Florida, Georgia, North Carolina and South Carolina. The H. N. Muller Co., Pittsburgh, has been made representative in western Pennsylvania.

Scott Reelected President

Richard H. Scott was reelected president of the Atlas Drop Forge Company, and E. W. Goodnow, vice-president and general manager, at the annual meeting of stockholders held in the company's offices. All other old directors and officers were returned to office.

Mench Leaves Dodge

E. L. Mench has left Dodge Brothers Truck Co., where has has served as special equipment engineer for the past four years. His future plans have not been announced.

Frank Ford Now Sales Head

Frank A. Ford has been made western sales manager of John Bath and Co., Inc., of Worcester, Mass. The company's western representation is centered in Detroit, with an office in Chicago.

Head a Bank Director

Allen H. Head, vice-president and general manager of the John Deere Tractor Co., Waterloo, Iowa, has been elected a director of the Commercial National Bank of Waterloo.

Litle With Holley

Thomas J. Litle, Jr., until recently chief engineer of the Marmon Motor Car Co., has been appointed director of engineering of the Holley Carburetor Co. of Detroit.

Thomas J. Litle, Jr.

Evans Elected Osborn Head

P. P. Evans has been elected president of the Osborn Engineering Co., Cleveland. Other officers elected are: E. H. Birney, vice-president; T. T. Hubbard, treasurer, and Kenneth H. Osborn, secretary. Mr. Birney is a director of the Reynolds Machine Co., Massillon, Ohio, and founder of several other industrial concerns in that city.

LeVan Now Sales Chief

At a recent directors' meeting of the Haynes Stellite Company, unit of Union Carbide and Carbon Corporation, E. E. LeVan was appointed general sales manager and J. H. Maguire was appointed works manager. Other appointments were F. T. McCurdy, plant superintendent; J. R. Brown, F. L. Secord and Everett Page, assistants to superintendent; L. H. Brown, research engineer.

Burrell Sails for Russia

Colonel George A. Burrell, of the Burrell-Mase Engineering Co. of Pittsburgh, who has been retained by the Russian Soviet Government for the purpose of modernizing the gasoline producing plants of Russia, sailed recently on the S. S. Bremen to take up his work in Russia.

Also on the Bremen is R. W. Greulich, European director of the Reo Motor Car Co.

Foreign Secretary Returns

Eric Cecil Gordon England, secretary of the Motor Agents Association, Ltd., sailed today on the White Star liner Olympic for England, having spent two months in this country.

Armstrong Promoted

W. F. Armstrong, formerly production manager of the Olds Motor Works, has been appointed assistant to C. E. Wilson, vice-president of the General Motors Corp.

Birge Goes With Packard to Build Custom Bodies

R. B. Birge, formerly vice-president of Le Baron, Inc., of Bridgeport, Conn., has been appointed chief of the custom body division of Packard Motor Car Co. Mr. Birge has been in the body-building industry for over 20 years, designing and building high-grade custom coach work.

Downey on Keller's Staff

The promotion of A. C. Downey, former director of purchases of the Chrysler Corp. to the staff of K. T. Keller, vice-president and general manager of the Chrysler Corp., has been announced by Mr. Keller. In his new capacity Mr. Downey has been assigned to special work under Mr. Keller's direction.

Mr. Downey has been succeeded by A. P. Hascall, former assistant purchasing director of Dodge Bros. and who has been assistant to Mr. Downey. Mr. Hascall has been with Dodge Bros. for 15 years.

Jamison Zone Manager

The appointment of J. G. Jamison as manager of the Kansas City zone in charge of Oldsmobile-Viking sales activities is announced by J. T. Collins, general sales manager of Olds Motor Works.

Mr. Jamison has been connected with Olds Motor Works for the past four years, holding executive positions in the New York, San Francisco and Kansas City zone offices. For some time previous to his promotion he was assistant to the zone manager at Kansas City.

Urquhart in Foreign Service

W. L. Urquhart, who has been engaged for several years in the development of foreign sales for international manufacturers, has organized a foreign trade council and service unit, to serve American manufacturers in the creation, maintenance and development of foreign sales.

Myers Joins Dexter Rubber

Carlyle W. Myers, formerly general manager of the Virginia Carolina Rubber Co., Inc., has been elected vice-president of the Dexter Rubber Manufacturing Co., of Goshen, N. Y. Mr. Myers will be in charge of advertising and sales.

Trundle Appoints Wells Chief

R. G. Wells, assistant chief engineer, Trundle Engineering Co., Cleveland, has been promoted to chief engineer of the company. Paul Van Sittert succeeds Mr. Wells as assistant chief engineer.

National Aviation to Buy Aeronautical Industries

NEW YORK, Feb. 5—Plans for acquisition of Aeronautical Industries, Inc., by National Aviation Corporation were revealed in an announcement today. The boards of directors of both companies have approved the plan which gives Industries' stockholders the right to exchange their common stock on the basis of four shares of Aeronautical Industries for three shares of National Aviation. It is understood that the exchange will be made on the relative book values of the two companies.

In pursuance of this plan, National Aviation stockholders will meet March 8 to vote on an increase in its authorized capital stock from 500,000 to 1,000,000 shares. The exchange offer is contingent on the deposit of 51 per cent of the stock of Aeronautical Industries.

New Acme Truck Formed

DETROIT, Feb. 5—The Acme Motor Truck Corp. has been organized by the directors of the former Acme Motor Truck Co. who will operate the business principally along the same lines as the old organization. Acme trucks continued to be produced and shipped during the period of receivership from Sept. 5, 1929, to Jan. 10, 1930, and at present the new corporation is manufacturing and marketing trucks.

The stockholders of the new company are the same group of men as the directors of the old company with the exception of Henry Knowlton, former treasurer, who has not gone along with the new organization. The officers are J. C. Ford, president; John P. Wilcox, vice-president; L. J. Deming, vice-president, and George B. Brown, treasurer.

Chevrolet Guarantee Changed

DETROIT, Feb. 6—A blanket guarantee for 90 days or 4000 miles of operation, whichever event occurs first, is a feature of the new Owner's Service Policy put into effect this month by the Chevrolet Motor Car Company. The guarantee covers the cost of both parts and labor required for the replacement of any parts due to faulty workmanship. This guarantee requires that the work be done by the dealer who sold the car, however, unless the owner changes his place of residence, in which case the Chevrolet dealer in his new locality will perform the work at no cost to the owner on presentation of proof that the warranty period has not expired by means of the state certificate of registration.

Sperry Receives Medal

NEW YORK, Feb. 3—The American Iron and Steel Institute presented its medal for the year ended 1929 to Dr. Elmer A. Sperry of the Sperry Gyroscope Co. This medal was awarded to Dr. Sperry in October but as he was then in Japan attending the World's Engineering Congress, presentation was made last week.

Pontiac Airport Officially Rated

WASHINGTON, Feb. 4—The municipal airport at Pontiac, Mich., has been issued the first rating under the Airport Rating Regulations of the Aeronautics Branch, Department of Commerce, it was announced today by Clarence M. Young, Assistant Secretary of Commerce for Aeronautics.

"The rating issued to the Pontiac airport," Mr. Young said, "is known as A-1-A, the highest issued under the Airport Rating Regulations.

"However, it is not intended that an A-1-A rating convey the thought that the ultimate in airport design has been provided. The ratings are convenient yardsticks and serve as a key to a detailed story about the airport and its equipment. In brief, the first letter 'A' means that certain minimum standards of hangar space and general facilities have been met. The numeral '1' refers to the size of the landing area and the last letter 'A' deals with the night lighting equipment."

I.A.E. Exhibitors Grow

ST. LOUIS, Feb. 3—Entry lists for the International Aircraft Exposition, which opens here Feb. 15, have reached the total of 164 exhibitors. These include 85 airplanes exhibited by 40 manufacturers, 13 aircraft engine exhibits and over 110 exhibits of accessories, equipment, tools, etc.

W. H. Alford

KENOSHA, WIS., Feb. 5—Colonel W. H. Alford, vice-president and comptroller of the Nash Motors Co., died at his home today after an illness of two days.

Rubber Exports Reflect Automotive Increase

WASHINGTON, Feb. 7—Reflecting an increase of nearly 5 per cent, the value of United States exports of automotive rubber goods in 1929 amounted to $43,092,441 as against $41,203,869 in 1928, according to the Rubber Division, Department of Commerce. It was declared that the aggregate volume of all automotive rubber goods last year undoubtedly established record high figures in the history of United States rubber goods exports. The market price, however, was affected by the low price of crude rubber. The reduced unit values of all items, except miscellaneous casings and tubes, emphasize more conclusively this tendency.

The general value increase of 5 per cent was affected almost solely by pneumatic tires. Exports of casings for passenger cars, trucks and buses showed an advance in value of 7 per cent, while casings and inner tubes for motorcycles, bicycles, airplanes and other vehicles registered an increase of 255 per cent. The latter advance, it was said, was probably brought about by increased trade of airplane casings and tubes which are allocated in this class.

Exports of solid rubber tires for trucks declined in value by 30 per cent, but the large increase in exports of truck and bus casings of 6 in. and over counteracted fully the decrease in solids. Other solid tire exports also registered a corresponding decline in both volume and value.

Exports of automotive casings last year totaled 2,979,438 units, of which 293,502 were truck and bus sizes. Although the volume broke all previous records, it did not attain the height estimated early in the year, principally because exports to Europe were less than was expected.

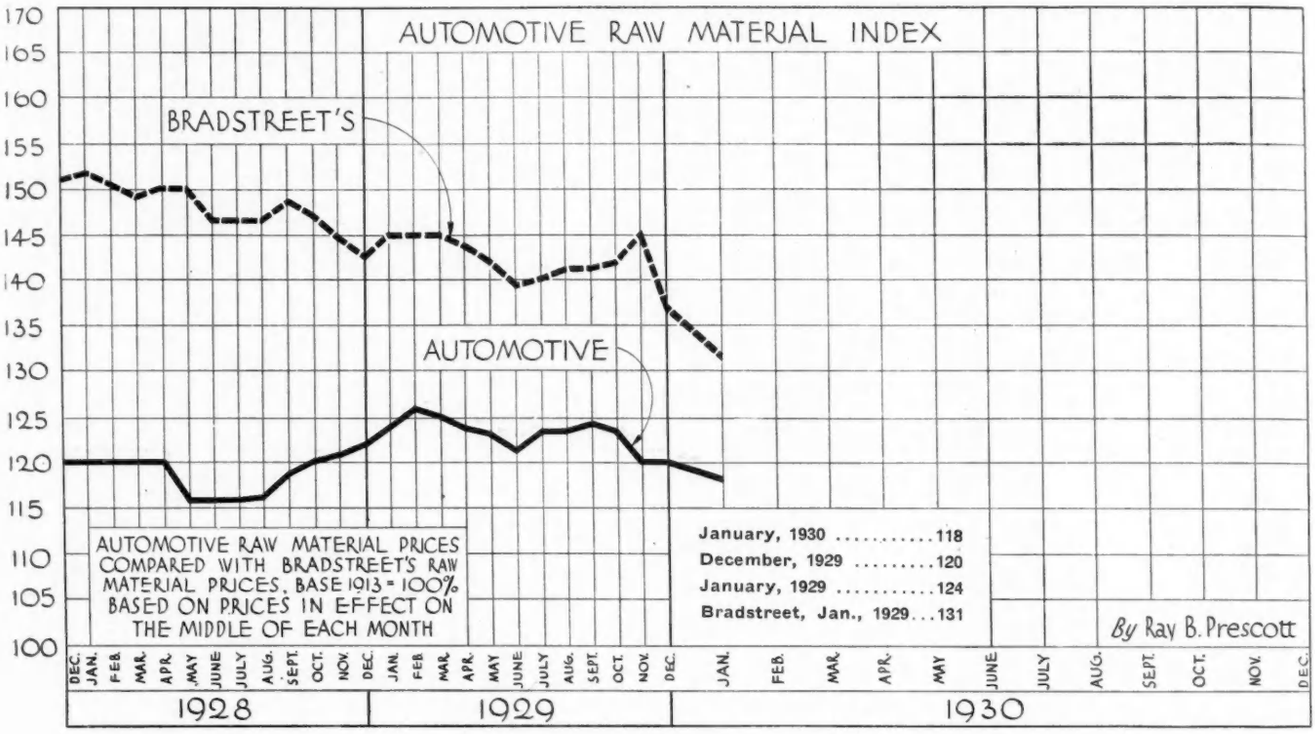
Reynolds Output High

DETROIT, Feb. 4—Reynolds Spring Co. of Jackson, Mich., reports January business exceeding any single month in the history of the company. This includes both new contracts and releases in the automotive industry. Every division of the company soon starts 100 per cent capacity production with several departments working nights. The largest spring releases for January were taken by Ford, Briggs Body and General Motors.

New Polishing Product

WILMINGTON, DEL., Feb. 4—A new product, called No. 7 Super-Lustre Cream, has been announced by E. I. du Pont de Nemours & Co., Inc. This product is a soft, white paste, made from an emulsion of waxes, oils and other ingredients, and is intended for rubbing on automobile and furniture finishes after they have been cleaned and polished. No. 7 Super-Lustre Cream is not a substitute for No. 7 Duco Polish, the company states, but is to be used in connection with that product.

Raw Material Index Lower During January



Aeronautical Chamber Grants Show Sanctions

NEW YORK, Feb. 3—The Aeronautical Chamber of Commerce of America, Inc., has granted sanctions for distributor-dealer aircraft shows at Cincinnati, Ohio, and Pittsburgh, Pa., making the total number of shows sanctioned by the chamber for this year six. In addition to the two mentioned, these include the International Aircraft Exposition at St. Louis to open the 15th of this month, and the New York Aircraft Salon at Madison Square Garden May 3 to 10, both of which will be directly managed by the chamber. The other sanctions have been for the All-American Aircraft Show at Detroit April 5 to 13, and the Buffalo Aircraft Show March 22 to 29. The Cincinnati Show will be held in the Cincinnati Music Hall, and the Pittsburgh Show will be held in the Motor Square Garden.

G.M.A.C. Elects

NEW YORK, Feb. 4—At a meeting of the board of directors of General Motors Acceptance Corp. today, the following additional vice-presidents were elected: Charles P. Fiske, in charge of domestic borrowing and financial sales operations; R. G. Hutchison, in charge of overseas branch operations, and J. H. McMahon, in charge of credits.

Roller Bearings for Coal Cars

NEW YORK, Feb. 4—One hundred 70-ton capacity Pennsylvania Railroad hopper cars used in the coal trade have been equipped with roller bearings by the Timken Roller Bearing Co.

New Insurance Rates

NEW YORK, Feb. 3—Rates on automobile insurance in New York State have been altered, going into effect today. Public liability rates on passenger cars have been reduced on an average about 3½ per cent, while property insurance rates have been increased about two per cent. On commercial vehicles the rates on public liability have been decreased about 16 per cent and those on property damage about eight per cent.

Crude Rubber Steady

NEW YORK, Feb. 3—Crude rubber trading has been quiet during the past week but the market has been steady, according to F. R. Henderson Corp. There has been an increasing demand from manufacturers and dealers for off grades, which are not now plentiful.

This company looks for a continuation of present price levels with possible advances in the near future.

Stocks in London continued to increase last week, reaching 59,984 tons. Liverpool stocks also increased to 20,063 tons.

Arrivals at all ports of the United States during January are estimated at 46,220 tons, with probable arrivals during February placed at 40,000 tons.

Open New York Office

HARTFORD, CONN., Feb. 5—Billings & Spencer Co., manufacturers of drop forge tools and machinery, are opening a New York office in charge of W. Roy Moore, who will be metropolitan sales manager.

Scott Vice-President of Van Norman Co.

J. Y. Scott, assistant general manager of the Van Norman Machine Tool company, has been elected second vice-president and assistant treasurer at the annual meeting. Mr. Scott has been associated with the company for the past 14 years.

The following officers were elected: President and general manager, C. E. Van Norman; first vice-president, F. D. Van Norman; second vice-president and assistant treasurer, J. Y. Scott; treasurer, C. E. Van Norman, and clerk, F. D. Van Norman. Directors appointed include C. E. Van Norman, F. D. Van Norman, J. Y. Scott, R. E. Pritchard, C. F. Bennett, Henry A. Feld, Bowen Tufts, R. L. Putnam and L. H. Campbell.

LaFrance-Republic Meeting

DETROIT, Feb. 3—Headed by Charles B. Rose, president of the LaFrance-Republic Corp., and F. L. Pierce, vice-president, a delegation of more than 30 men participated in a three-day sales meeting at Alma recently. Every factory branch east of the Mississippi was represented in the party, as well as one European representative, M. H. Hoepli, and Charles Hamilton, western sales manager.

United Aircraft Sales

NEW YORK, Feb. 4—Chance-Vought Corp., unit of United Aircraft & Transport Corp., reports net airplane sales for 1929 totaling $3,138,000. Export business for the year approximated $1,000,000 as compared with $200,000 for 1928.

Aircraft Engine Research Report at Exposition

ST. LOUIS, MO., Feb. 4—Proper methods for testing and servicing aircraft engines will be considered by the Motor Manufacturers Section of the Aeronautical Chamber of Commerce when it meets at Hotel Jefferson, St. Louis, Mo., Feb. 18. The meeting is being held in conjunction with the International Aircraft Exposition sponsored by the Aeronautical Chamber of Commerce Feb. 15 to 23. The group also plans to devise a system of discounts for airplane manufacturers, distributors and service stations.

The Motor Manufacturers Section also will hold a joint meeting with the Commercial Airplane Manufacturers Section Feb. 20. The two groups will attempt to iron out problems which they face jointly.

A possible change in the present standard of speed rating for aircraft engines is expected to be suggested at the St. Louis meeting by the engine manufacturers. A production report, which includes the output of 25 aircraft engine manufacturers during 1929, will be announced at the St. Louis meeting. The report was compiled by the Aeronautical Chamber of Commerce and will show that production of powerplants for commercial ships increased nearly 200 per cent during the year of 1929.

A schedule of 16 meetings sponsored by the Aeronautical Chamber of Commerce, Society of Automotive Engineers and the Aeronautics Branch of the Department of Commerce has been drawn up for the International Aircraft Exposition. In addition to the Motor Manufacturers Section the following sections of the Aeronautical Chamber of Commerce will meet during the Exposition:

Commercial Airplane Manufacturers, Air Transport, Flying School, Airport, Distributors and Dealers, Accessory and Materials, Fuel and Lubricants, Finance and Insurance.

A joint banquet of the Aeronautical Chamber of Commerce and Society of Automotive Engineers will be held at Hotel Jefferson, Feb. 19.

Drivers Pay More Taxes

BALTIMORE, MD., Feb. 4—Large increases in revenues to the State of Maryland paid by motor car owners are reported for last year by William S. Gordy, Jr., state comptroller. The gasoline tax of 4 cents a gallon brought in $5,510,000, an increase of $300,000 over 1928. Revenues from automobile registrations, licenses, fees and traffic court fines collected by the state totaled $3,413,000, an increase of $229,000 over 1928.

Waco Model Reduced $685

The Waco Aircraft Company is announcing a reduction in price on the Waco "150," effective immediately. This model, equipped with the 150 hp. Hispano-Suiza engine, has been reduced from $3,935 to $3,250, a $685 reduction, and applies only to the Hisso engines on hand at the factory at Troy, Ohio.

Exercise of Lien Good on Rum Car

DENVER, COL., Feb. 3—A corporation which in good faith sells an automobile on the instalment plan can exercise its lien if the car is seized for transportation of liquor, the United States Circuit Judge of Appeals for the Tenth District has ruled.

The opinion was in an appeal filed by the C. I. T. Corporation which sued in the Federal District Court for Kansas to enforce a mortgage for $1,035 on a car seized and sold by Federal authorities after Calvin Humbered was convicted of transporting liquor in it.

The car was purchased in the name of Earl Smith and the court held that although the C. I. T. Corporation might have known Humbered was a "questionable character," it was entitled to the car because of the Smith title.

Ford Adds to Norfolk Plant

RICHMOND, VA., Feb. 3—Improvements which have been planned for the Ford assembly plant at Norfolk are expected to involve about $2,000,000. The plant in 1929 assembled 60,000 cars, a total of 15,000 in excess of any other year. It was also announced that the annual maximum capacity will be increased to 120,000 cars, with the expectation that the number of employees will be increased from 1800 to 2400.

Otis Resumes Operations

CLEVELAND, Feb. 3—The Otis Steel Co. has resumed operations of all of its eight open-hearth furnaces at its Riverside plant. Operations of the finishing departments of the company are at 80 per cent of capacity, with prospects of a further increase in February. The requirements of the automobile industry are steadily expanding and present indications are that operations will be virtually at full capacity by early March, according to President E. J. Kulas.

Farmall Increases Payroll

MOLINE, ILL., Feb. 4—To take care of orders which must require an output of 200 tractors daily, 750 men have been added to the payrolls of the Farmall Tractor branch of the International Harvester Co. The company now has 3750 men enrolled. A large proportion of the orders received came from foreign countries. On Jan. 1 the company here was turning out 125 tractors daily and by March 1, or sooner, it is expected to reach the 200 mark.

Evans Operating 75 Per Cent

DETROIT, Feb. 3—Plants of the Evans Auto Loading Co., Inc., are operating at about 75 per cent of capacity, it was stated today by E. S. Evans, president.

The loading device division is operating slightly under the rate of a year ago, but considerably better than in December.

Engine Output in 1927 Valued at $141,261,281

The report of the Bureau of the Census on the production of engines, turbines, water wheels, pumps and pumping equipment in the United States during 1927 has appeared recently. It shows that the internal combustion engines (not including tractors) produced in this country during 1927 were valued at $141,261,281, as compared with $117,893,644 in 1925, $110,751,692, in 1923 and $74,698,921 in 1921.

Among these internal combustion engines were included motor vehicle engines other than motorcycle engines of the following values during the respective years: 1927, $63,635,746; 1925, $55,623,879; 1923, $59,074,243; 1921, $31,005,352. The figure for 1925 includes the values of a small number of aircraft engines and that for 1923 the values of a small number of aircraft and motorcycle engines.

The value of tractors and traction engines produced in 1927 was $139,121,915, as compared with $102,904,828 in 1925, $78,319,688 in 1923 and $53,168,819 in 1921. Of the tractors produced in 1927, farm, road and similar types accounted for $136,022,354; garden tractors and motor cultivators for $814,096, truck-tractors for $2,172,265 and steam traction engines for $113,200.

More Rubber Restrictions

NEW YORK, Feb. 3—Further moves in the restriction of production in crude rubber were reported by cable advices received by the Rubber Exchange of New York, Inc.

The Kuala Perdang Syndicate has decided to follow the lead of the Telogoredjo United Plantations in restricting the production during the present year by 10 per cent, provided a sufficient number of other companies engaged in the plantation industry adopt a similar policy.

To Build Bus Terminals

SPOKANE, WASH., Feb. 3—Interstate Coach Company, Spokane, Wash., bus operating subsidiary of Union Pacific System, will erect 15,000 sq. ft. floor space garage at cost of $35,000 in Spokane and two motor terminals in the Palouse section of Washington and Idaho to cost total of $45,000. Towns where these will be erected have not been announced.

Linde to Build

SPOKANE, WASH., Feb. 3—Linde Air Products Co., Pacific Coast division, is planning construction of plant for its Pres-O-Lite division. Option on two blocks of land adjoining Great Northern Railway has been obtained and first factory unit will be 100 x 50 feet with several smaller structures.

Navy Buys Standard Planes

LOS ANGELES, Feb. 3—United States Navy Department has ordered six V-29-A planes from new Standard Aircraft Co. of Paterson, N. J.

General Motors Line Covers Broad Range

NEW YORK, Feb. 1—Analysis of General Motors lines of cars as listed in one of their booklets gotten out in January shows that the complete line has 140 models, ranging in price from the Chevrolet roadster at $495 to the Cadillac V-16 custom job, at $9,500. The diversification covered by General Motors in passenger transportation is shown by the following figures:

Chevrolet has eight models of passenger cars priced at $495 to $675.

Pontiac has seven models of passenger cars priced at $745 to $875.

Oldsmobile has seven models of passenger cars priced at $895 to $1,060.

Marquette has six models of passenger cars priced at $990 to $1,060.

Oakland has seven models of passenger cars priced at $1,025 to $1,195.

Viking has three models of passenger cars priced at $1,695.

Buick has 15 models of passenger cars priced at $1,260 to $2,070.

LaSalle has 14 models of passenger cars priced at $2,200 to $3,995.

Cadillac 8 has 23 models of passenger cars priced at $2,800 to $5,145.

Cadillac V-16 has 50 models of passenger cars priced at $5,350 to $9,500.

W. H. H. Hutton, Jr.

WILMINGTON, DEL. Feb. 3—Colonel William H. H. Hutton, Jr., a pioneer in the automobile manufacturing business, died at his home here last Thursday. He was 60. He was one of the organizers of the Timken-Detroit Axle Co.

Colonel Hutton was a native of Florida. He studied civil engineering at Cornell University, received the degree of doctor of medicine at the University of Maryland and did post-graduate work at the University of Pennsylvania, after which he went into the automobile manufacturing business.

Olds Office Building Removed

DETROIT, Feb. 4—Contract for the wrecking of the old office building and for other structures of the Olds Motor Works, Lansing, have been awarded and the work started yesterday. Officials of Olds had nothing to announce in connection with the tearing down of the old buildings, but it is considered probable that they will make room for future expansion. The company has built practically a new plant in two years.

Bumper Plant in Production

MONTREAL, Feb. 4—The Skinner Co., Gananoque, Ont., a subsidiary of the Houdaille-Hershey Corp., went into production of automobile bumpers at its new Oshawa plant on Feb. 1, with 200 employees. Machinery and equipment is installed. The plant was erected at a cost of $25,000.

Paris Air Safety Congress

WASHINGTON, Feb. 4—The First International Congress for Air Safety will be held at Paris, France, in the fall of 1930, according to a report received in the Department of Commerce from Automotive Trade Commissioner W. L. Finger at Paris.

Ford Wage Increase Effected in Japan

YOKOHAMA, Jan. 10—Wages at assembling plant of Ford Motor Co. there will be increased from five yen ($2.50) to six yen ($3) a day. Ford minimum already was from 20 per cent to 30 per cent above prevailing Japanese wage for metal workers. About 400 workers in Yokohama plant benefit by increase.

Six Models in Waco Line

The Waco line for 1930 will consist of six models. The OX and Hisso models will be continued as they are, no changes being made. The Waco "165," which uses the five-cylinder Wright Whirlwind, will be practically the same as last year's model. A number of refinements in design are to be incorporated, but no major changes.

A brand new Waco Model is to be displayed at the St. Louis Show for the first time. This will be a three-place plane powered with a 100 horsepower engine, air-cooled. Experimental flight tests have proved very satisfactory performance and display and demonstrating models are being rushed through to completion. Bendix wheels and brakes are to be standard equipment and a tail wheel will be used instead of a skid.

T. A. T.-Maddux Cuts Personnel

ST. LOUIS, Feb. 1—Operations headquarters of T. A. T.-Maddux lines were transferred from the Syndicate Trust Building here, to the company's hangar at Port Columbus, Ohio, today as an economy measure. Personnel was reduced considerably.

H. S. Jones, formerly with the Pennsylvania Railroad, has been appointed assistant to the recently elected president, J. L. Maddux, and is in charge of the economy program.

German G. M. Report

BERLIN, Jan. 10—Annual production of General Motors G.m.b.H. valued at approximately 81,000,000 reichsmarks, according to estimate by *Frankfurter-Zeitung*. Passage of import quotas and tariff rates probably will shift major part of operations from assembly plant at Berlin-Borsigwalde to plant at Russelsheim.

Bates Gets More Orders

JOLIET, ILL., Feb. 4—The Bates Tractor Co. reports orders for $1,000,000 worth of tractors and road construction machinery, secured at the recent Road Builders' show. The company has been operating at 40 per cent of its capacity during the past winter, but the large number of orders just received has resulted in instructions to add 200 men on Feb. 15.

Automobile Exports Gain 8 Per Cent in a Year

WASHINGTON, Feb. 7—Exports of automobiles, including parts and accessories, $539,000,000 in 1929, showed a gain of 8 per cent over those of 1928, notwithstanding the fact that foreign sales during the fourth quarter fell considerably below those of the corresponding period of the previous year, according to the annual foreign trade review of the Department of Commerce. Total exports from the United States last year reached a total of $5,248,000,000 or 2.3 per cent more than during 1928, which year in turn was the previous high total since 1920. Exports of automobiles, including parts and accessories, in 1929 were three times greater in value than the average yearly sales for the period 1921-1925.

Imports in 1929 aggregated $4,400,000,000, an increase of $309,000,000 over 1928, and slightly less than in 1926, the highest figure since 1920. Price reductions have greatly affected the total value of imports in the past few years. Owing to a sharp drop in prices, the value of rubber imports in 1929 declined more than one-half since 1926, despite a steady increase in quantity imported. The quantity of rubber imported last year, 1,263,000,000 lb., set a record, and compared with 978,000,000 lb. in 1928. The import value per pound for rubber averaged 19.1 cents in 1929 as compared with 25 cents in 1928. As a result the value in 1929 amounted to $241,000,000, or 1.6 per cent less than a year earlier.

Canadian Imports Lower

OTTAWA, ONT., Feb. 4—Imports of automobiles into Canada in December amounted to $2,404,818 as compared with $2,413,383 in November and $4,126,346 in the corresponding month of last year.

Exports of automobiles in December had a total value of $2,252,593 as compared with $2,912,312 in the previous month and $3,154,203 in December of 1928.

St. Louis Show Opens

ST. LOUIS, Feb. 3—The annual St. Louis Automobile Show opened in a new setting today, the display having been shifted from the Union Market Garage in the downtown business district to the Arena.

Among the salon displays is the Austin Bantam sports roadster, Great Britain's popular product. At one end of the salon is an exhibit of antique models, including a 1903 Franklin.

The show, which is under the direction of Maj. Robert E. Lee, president of the National Association of Automobile Show Managers, is the twenty-third display held in St. Louis.

Bendix Increases Stations

Inauguration of world-wide service for Bendix products through a chain of specially equipped and expertly manned service stations was announced today by William L. O'Neill, vice-president of the Bendix Aviation Corporation.

Lamson-Sessions Buys Foster Nut & Bolt Co.

CHICAGO, Feb. 4—Purchase of the Foster Bolt & Nut Manufacturing Company, with plants in Cleveland and Chicago, by the Lamson & Sessions Co., makes the latter company manufacturers of one of the most complete line of bolts and nuts in the United States, in addition to which the acquisition of the Foster properties enables Lamson & Sessions to provide consumers and distributors with a full line of cap screws.

Lamson & Sessions was founded at Mount Carmel, Conn., in 1865, and moved to Cleveland in 1869. Now with the purchase of Foster the Lamson & Sessions Co. covers every field where bolts, nuts, cap screws and cotter pins are used.

Eight plants are in operation at present, in Cleveland and Kent, Ohio; Chicago, Ill., and Birmingham, Ala. Personnel of the Foster organization remains virtually unchanged. J. F. Donohue, former president of Foster, will have charge of Western operations for Lamson & Sessions, his general headquarters being in the Chicago office in the Straus Bldg. and at the Chicago plant built in 1926 by Foster.

Fiberloid Improves Product

SPRINGFIELD, MASS., Feb. 3—Fiberloid Corp. has adopted an improved process of making pyroxylin sheets of the inner layer of laminated glass for automobile windshields and windows. By the new method, said to incorporate revolutionary features, the pyroxylin plastic comes off a machine built on lines similar to a paper machine and is passed along to be dried and finished by a continuous automatic process. By this means it is said that the quality of the product is improved and more rapid production and prompt deliveries made possible.

First deliveries of the sheets produced by the new method already have been made. For several years this concern has sold its product for use in leading makes of cars, but recently German competition has interfered with domestic sales and American concerns have been spurred to adopt improved methods of manufacture.

Chile Increases Duties

WASHINGTON, Feb. 7—Increased rates of duty on gasoline for motors and on automobiles are provided in a bill approved by the Chilean Congress on Jan. 30, to become effective upon publication in the *Diaro Official*, the official organ of Chile, according to a cablegram received by the Department of Commerce from Commercial Attache Ralph H. Ackerman, Santiago. The duty on gasoline for motors is increased from .12 to .24 pesos per gross kilo, the peso equaling $0.1217 at par. Rates on automobiles, which are dutiable at seven different rates on a progressive scale, based on their weight up to 1500 kilos, and from 1500 kilos to various other weights, will be increased by 10 per cent.

Soviet Tractor Order for Allis-Chalmers

SPRINGFIELD, ILL., Feb. 3—Orders for 300 "50" tractors have been received by the Monarch Tractor Division of the Allis-Chalmers Manufacturing Co. plant here, from the Russian government, representing, with necessary repair parts, an expenditure of more than $1,000,000. It is one of the largest orders the local plant has ever received. A sales and service representative will be sent from the plant soon to prepare for delivery of the tractors to the Soviet.

Bendix Operations at Peak

CHICAGO, ILL., Feb. 4—The brake division of the Bendix Corp. has issued a statement that because of new contracts it is operating at the peak of its history. The aviation division of the corporation indicates an income for 1929 of more than $8,000,000 after taxes and other charges have been deducted. This would mean a little more than $3.25 a share in earnings. This shows a healthy increase over the $6,166,045 earnings of the division in 1928.

W. J. Buettner, treasurer of the company, said the Bendix corporation was planning to acquire one or more automotive accessory manufacturing plants. Other than to say that the acquisition would materially increase the earnings of his company, Mr. Buettner refused to disclose their identity.

The purchase of these companies, he added, would be made through an exchange of stock which would benefit mutually the Bendix Company and the shareholders of the other companies.

Norton Co. Expands

WORCESTER, MASS., Feb. 4—A new grinding wheel manufacturing plant at Welwyn, Garden City, Hertfordshire, England, and a new service building at Chicago are foremost in the building program of Norton Company, according to a recent announcement by Charles L. Allen, president and general manager.

The initial group of buildings at Welwyn is to comprise a power house, a one-story kiln building with monitor, a four-story manufacturing building and a two-story building devoted to inspection, packing, shipping and office space, which altogether will provide a combined floor area of approximately three acres.

The new service building at Chicago is located at the corner of Forty-seventh Place and Turner Ave. At present it will be a one-story structure, 121 ft. wide by 221 ft. long. Future plans call for two and three-story additions to the building.

S.A.E. Aeronautic Meeting During Aircraft Show

NEW YORK, Feb. 4—As a compliment to Colonel Lindbergh, and so that those engineers who reside in the West may have opportunity to attend the important technical sessions, the Society of Automotive Engineers have selected St. Louis, Mo., as a meeting place for their national aeronautic meeting at the Hotel Jefferson, Feb. 18, 19 and 20, during the International Aircraft Exposition.

Five sessions and 12 papers devoted to aeronautic engines, fuels, instruments, production and radio will make the meeting of more than usual importance to those interested in air transportation. Herbert Hoover, Jr., the son of the President, will discuss radio communication and transport work. O. C. Bridgeman, of the Bureau of Standards, is scheduled to explain the vapor lock.

Wm. B. Robertson, of the Curtiss-Robertson Airplane Mfg. Co., will discuss production methods of airplanes; E. L. Nelson and F. M. Ryan, of the Bell Telephone Laboratories, will contribute a paper on the provision of radio facilities for aircraft communication. There will also be an interesting resume of what has been learned about fog flying by Lieut. James Doolittle.

The only social event is a dinner held jointly with the Aeronautical Chamber of Commerce. K. M. Lane, of the Department of Commerce, will be the only speaker. He will discuss the defects of modern aircraft. Chance M. Vought will be toastmaster.

Russell A. Alger

DETROIT, Feb. 3—Russell A. Alger, prominent Detroit industrial and social leader who died Jan. 26 in a New York hospital of pneumonia that followed an operation, was buried after services at the family home, 32 Lake Shore Road, Jan. 28.

Mr. Alger was a director and former vice-president of the Packard Motor Car Company, which he helped to establish in Detroit in 1903.

Surviving are his widow, Mrs. Marion J. Alger; two daughters, Mrs. Josephine Alger Chaney and Mrs. Fay Alger Miller; a son, Russell A. Alger, Jr., of Detroit; two sisters, Mrs. Henry D. Shelden and Mrs. Charles B. Pike, of Chicago, and a brother, Colonel Frederick M. Alger.

Caterpillar Business Heavy

EAST PEORIA, ILL., Feb. 4—During the first month of 1930, the Caterpillar Tractor Co. of this city enjoyed the heaviest business in its history, while the prospects were never brighter for a continuation all through the new year. More than 5000 persons are now on the payrolls against 3450 at the close of 1928. It is assured that during the present year, 1500 more will be added in the foundry and harvester plants. Since the company was first formed, there has never been a shutdown.

Delco Light Corp. to Move to Rochester Plant

ROCHESTER, N. Y., Feb. 4—The Delco Light Corporation of Dayton, Ohio, a subsidiary of General Motors, will be moved to this city within three months, Edward A. Halbleib, president of the North East Appliance Corporation, announced here today. General Motors recently purchased North East, one of the largest manufacturers of automotive electrical equipment in the world.

The Delco business will be moved here in its entirety, Mr. Halbleib said. Alterations are now under way at the North East plant here. The first machinery is being installed. Only 70 of the Delco's employees will come here from Dayton, according to Mr. Halbleib, the balance of help being recruited in this city.

Along with the Delco plant will come a part of the business of the Day-Fan Company, another General Motors subsidiary, which manufactures radio receiving sets, electric fans, vacuum cleaners and other electrical appliances.

Viking Sales Improve

DETROIT, Feb. 4—At the recent meeting of the Oldsmobile-Viking dealers of the Great Lakes Region, held in Lansing, D. S. Eddins, vice-president and general manager of the Olds Motor Works, announced that retail sales for the first ten days in January exceeded the same period in January, 1929. Mr. Eddins predicted a prosperous year's business. Similar optimistic predictions were given by J. T. Collins, general sales manager.

Kinite Adds Toledo Plant

The Kinite Corp., of Milwaukee, makers of Kinite alloy steel castings, bar stock, and ironite (a vanadium nickel-alloy) has increased its manufacturing facilities by the addition of the Toledo foundry of the Owens-Illinois Glass Company.

This foundry will also make grey iron castings and ironite castings for the three Owens-Illinois glass plants in West Virginia for the present.

G.M. Truck Corp. Gets Order for 1000 Cabs

CHICAGO, ILL., Feb. 4—The Terminal Cab Corp. has been formed here by the Yellow Truck and Coach Manufacturing Co., a subsidiary of the General Motors Corp., to operate a taxicab service.

An order for 1000 cabs has been placed by the new organization with the General Motors Truck Corp. The cab corporation, it is understood, will extend operations to other large cities.

Clarence W. Hodges

Clarence W. Hodges, general purchasing agent of the Worthington Pump and Machinery Corporation, died on January 17 at the Paterson (N. J.) Hospital as a result of an operation. He was 53 years old.

Mr. Hodges was born at Randolph, Vt., May 15, 1876, and was graduated from Williams College with the closs of 1900. For some years he was employed by the American Locomotive Company as purchasing agent, and since 1918 he had been employed in the same capacity by this corporation.

Sparton, of Canada, Formed

DETROIT, Jan. 30—Sparks-Withington Company, of Jackson, Mich., has announced the formation of a new manufacturing concern, Sparton of Canada, Ltd., to be located in London, Ont. The corporation has a capitalization of 200,000 shares no par value and will manufacture radios and warning signals.

Officers of the company are William Sparks, president; Harry G. and Clifford Sparks, vice-presidents; Leland Bisbee, secretary, and J. A. Esic, treasurer and manager. The corporation has purchased the plant of the Sherlock-Manning Piano Company, of London, where production will start shortly.

DeVilbiss Expands Sales Facilities on West Coast

Increasing volume of business in Southern California territory is the reason for the establishment of a new and thoroughly complete sales and service branch by the DeVilbiss Company at 2305 East Eighth St., Los Angeles, Cal. R. J. Burns is manager of the new Los Angeles branch. The DeVilbiss Company manufactures and sells spray-painting and spray-finishing outfits and equipment for all industries and uses, exhausting equipment, air compressors, and air and fluid hose.

Brake Shipments Higher

CHICAGO, Feb. 4—The Bendix Brake Co., a division of the Bendix Aviation Corp., today announced that shipments in January to automobile manufacturers will be more than 25 per cent greater than in January last year.

It is also reported that business now on the books is far ahead of business accumulated at this time last year and that this early in 1930 the company is able to predict that its sales and deliveries for this year will be some 25 to 30 per cent greater than for 1929.

The plant at South Bend is working full time to get into production on new accounts and expects to be in the midst of deliveries within the next four to five weeks.

Cincinnati Sales Better

CINCINNATI, Feb. 3—Final figures for attendance at this year's automobile show are approximately 15 per cent greater than last year, according to officials of the Cincinnati Auto Dealers' Association. Interest in the exhibits also was keener this year, they contend, due probably to the fact that more persons are in the market for new automobiles now than was the case during the same period last year.

Utmost optimism prevails among dealers as the result of show enthusiasm and there is every indication of a steady increase in demand as spring approaches, according to J. W. Tarbill, president of the dealers' association.

Calendar of Coming Events

SHOWS

San Francisco, Cal., Automobile..Feb. 1-8
Minneapolis-St. Paul, Automobile..Feb. 1-8
Toledo, Ohio, Automobile .....Feb. 3-8
Wichita, Automobile .....Feb. 3-8
Cumberland, Automobile .....Feb. 3-8
Syracuse, Automobile .....Feb. 3-8
Ottawa, Automobile .....Feb. 3-8
St. Louis, Automobile .....Feb. 3-8
Elgin, Ill., Automobile .....Feb. 5-8
Cincinnati, Aircraft .....Feb. 8-14
Albany, Automobile .....Feb. 8-15
Akron, Automobile .....Feb. 8-15
Kansas City, Automobile .....Feb. 8-15
Columbus, Ohio, Auto-Plane .....Feb. 9-13
New York, American Legion, Aviation .....Feb. 9-15
Denver Automobile .....Feb. 10-15
Indianapolis, Automobile .....Feb. 10-15
Sheboygan, Automobile .....Feb. 10-16
Mankato, Automobile .....Feb. 12-15
Black Hills, S. D., Automobile...Feb. 12-15
Peoria, Automobile .....Feb. 12-16
Providence, Automobile .....Feb. 14-22
Canton, Automobile .....Feb. 15-22
St. Louis, International Aircraft..Feb. 15-23
Omaha, Automobile .....Feb. 17-22
Copenhagen, Automobile .....Feb. 21
Los Angeles, Automobile..Feb. 22-March 2
Camden, N. J., Automobile..Feb. 24-Mar. 1
Des Moines, Automobile ....Feb. 24-Mar. 1
Seattle, Wash., Automobile..Feb. 25-Mar. 2
Detroit (All-American Aircraft)..April 5-13
Asbury Park, N. J., Automobile..April 7-12

CONVENTIONS

American Society of Steel Treaters, New York .....Feb. 7-8
Engineering Institute of Canada, Montreal .....Feb. 12-14
Southwest Road Show and School, Wichita .....Feb. 25-28
National Management Congress, Chicago .....Mar. 3-7
American Society for Testing Materials, Regional Meeting, Detroit .....Mar. 19
American Society Mechanical Engineers, Fiftieth Anniversary Celebration:
New York .....April 6
Hoboken, N. J. .....April 7
Washington, D. C. .....April 8-9
National Foreign Trade Conference, Los Angeles, ...May 21-23
World Power Conference, Berlin..June 16-25
Railway Supply Mfrs. Assn., Meeting and Exhibit, Atlantic City...June 18-25
American Railway Association, San Francisco .....June 23-26
American Society for Testing Materials, Annual Meeting, Atlantic City .....June 23-27

SALONS

Hotel Biltmore, Los Angeles.....Feb. 8-15
Palace Hotel, San Francisco, Feb. 22-Mar. 1